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ABSTRACT

In the fall of 1985, 10 academy programs were established by the State of California as replications of the Peninsula Academies already operating in a local school district for four years. An academy is a modified high school program with the following specific elements, among others: (1) students with academic potential who are at risk of dropping out; (2) a school-within-a-school administrative structure for grades 10-12; (3) technical courses to provide students with job skills; and (4) support from local businesses. This report evaluates the academies' 1986-87 school year. Among the conclusions were the following: (1) the academy program model is capable of producing substantial positive effects on participating students, but developing an effective program is difficult; (2) attitude improvements among students were registered at most sites; (3) at three sites, program students registered significant improvements on objective measures of school performance; (4) the ability of the academy model to accomplish these outcomes is not limited to socially and economically congenial settings; (5) overall, the academies have been successful in helping students compile better academic records, but appear to have no significant effect on attendance and dropout rates; and (6) these findings are generally consistent with those determined in the 1985-86 evaluation of the programs. Recommendations are offered for program improvement and future evaluation. Tables illustrate the data. Appendices provide student outcomes by site, the text of the Academies Bill SB 605, and a multivariate analysis of program effects. (BJV)

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Charles Dayton, Alan Weisberg,
David Stern, John Evans

April 1988

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April 1988

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Policy Paper No. PP88-4-3
Policy Analysis for California Education (PACE)
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April 1988

Executive Summary

In the fall of 1985, 10 academy programs were established by the State of California as replications of the Peninsula Academies. Policy Analysis for California Education evaluated these 10 academies in 1985-86. This report presents findings from a second evaluation covering the academies' 1986-87 school year.

Student Outcomes

The most important finding from this second-year evaluation is that the academy program model is capable of producing substantial positive effects on participating students, but that developing an effective program is difficult. This has been clearly accomplished in three sites.

Attitude improvements among students were registered at most sites: program students noted a strong connection between their schoolwork and outside employment, liked the academy better than the regular school program, found their academy classwork more interesting than their regular school program, highly rated the academies' equipment and materials, and improved their self esteem by participating in the program.

In 3 of the 10 sites studied, academy students registered significant improvements on objective measures of school performance. When viewed against matched comparison groups not participating in the academy programs, academy students recorded higher attendance rates, earned more academic credits, achieved higher grade point averages, and failed fewer courses. There are also preliminary indications that these successful sites may be reducing the dropout rate, but the final assessment on this question must await subsequent data on high school graduation rates for academy and comparison-group students.

Significantly, the ability of the academy model to accomplish these outcomes is not limited to socially and economically congenial settings. The three clearly successful sites included a small, suburban, predominantly white high school; an average-sized, urban, predominantly black high school; and a large, urban high school with an ethnically diverse population.

Two sites presented evidence of not succeeding. One never implemented anything approaching the academy program model, and outcome data were not gathered there. This site closed in June 1987. The other has a record of findings favoring comparison rather than academy students, although not generally at a statistically significant level.

Rigorous statistical procedures were used in this study to judge the academy programs' effectiveness. These procedures offer an ambiguous picture at five sites. While the vast majority of differences at these sites favor academy students, most are not statistically significant. Because the programs become fully operational only during the 1987-88 school year, when all three classes of students are in place, evidence from the next evaluation, covering the 1987-88 school year, should allow clearer judgments regarding these sites.

Another way of approaching the academies' performance to date is by viewing them as a group. Overall they have been successful in helping students compile better academic records, as reflected in larger numbers of course credits, better grades, and fewer courses failed. For attendance and dropout rates, there is no clear evidence that similar gains have been made by academy students, though at the three successful sites there are preliminary indications of fewer dropouts.

These findings are generally consistent with those reported by PACE in the 1985-86 evaluation of these programs, but they indicate a somewhat higher level of effectiveness, and stronger data underlie the findings. In particular, more and better data were secured on comparison students, and a more sophisticated analysis of these data greatly strengthened the evaluation's conclusions.

Overview of the Academies Model

During the 1986-87 school year, the academies (now called Partnership Academies) operated in 10 high schools: four in the San Francisco Bay Area, three in or near Sacramento, two in Stockton, and one in Bakersfield. Each received a $50,000 grant from the state under Assembly Bill 3104, with matching funds required from both school district and cooperating business supporters.

An academy involves a modified high school program with a number of specific elements, including:

- A student selection process designed to enroll students with academic potential, but whose past performance indicates they are in danger of dropping out
- A school-within-a-school administrative structure, such that academy students in grades 10-12 enroll as a group in three core academic subjects, including English and mathematics, with selected teachers

- A technical course in grades 10-12 designed to provide students with basic job skills in a promising labor-market field (e.g., computers, electronics, and health) located nearby

- Support from local businesses, including curriculum development, guest speakers, field trip sites, mentors, and work experience positions

- Both high school and district support for the program, providing the necessary teacher preparation time, facilities, equipment, curriculum development, and counseling support

Evaluation Design and General Findings

The 1986-87 evaluation focused on two areas. First, the evaluation addressed program implementation and the degree to which programs followed the academy model. There was considerable variation from site to site in this regard. On a 25-point scale, programs ranged from 7.5 to 23 in the degree to which they fully implemented the model. Program expenditures also ranged widely, with well implemented programs spending more money.

The second focus of the evaluation addressed student outcomes and the degree to which these were influenced by the programs. The evaluation employed a comparison group design, in which a group of nonacademy students similar to those in each academy program was selected and tracked along with the academy students. Comparisons were made in terms of retention in school, attendance, credits earned, courses failed, and grade-point averages. The statistical model used to test for differences between program and comparison groups on these dimensions corrected for differences in prior school performance, gender, race or ethnicity, and date of birth.

For the most part, implementation observations correlate well with what outcome data demonstrates about the academies' success or lack thereof. The three academies with the "best numbers" also rated highly in the extent to which they fully implemented the academy model. While the correlations were not perfect, the other sites with better implementation also tended to have better student outcomes. While full development of the model does not guarantee success, it appears to be a prerequisite to achieving significant positive differences in student outcomes.

Recommendations

Legislation (Senate Bill 605) is already enacted and in place to expand the number of academy replications up to 15 additional sites per year for four years, as well as to continue funding of existing programs. If the quality of implementation across sites can be improved and new programs can be replicated with greater consistency than has occurred with previous expansion efforts, the proportion of sites with clearly positive outcomes for participating students can be raised. A number of actions are needed to provide the best chance for such consistent implementation.

1. *The requirements of SB 605 should be carefully followed in establishing new academies.* Grants should be provided only to districts with appropriate target populations that are willing to meet the matching requirements. Further, the programs should be implemented in full accordance with key features of the model.

2. *Sufficient training should be provided to all new sites.* Such training should target district and school administrators as well as teachers. It should provide a full understanding of the academy model as well as address the necessary private-sector involvement. This training should occur during the planning period and be followed up during the first year of implementation.

3. Senate Bill 605 is designed around a performance-based system of funding. For this system to operate as intended, *the performance of new academies should be followed carefully in accordance with provisions of the legislation.* A clearly articulated mechanism for such tracking must be established by the State Department of Education as part of its grants administration.

4. *The State Department of Education should monitor program implementation and determine their consistency with the model.* The department should take action to correct inconsistencies where found and terminate the grants for sites that do not take corrective action.

5. *The evaluation should be continued through at least June 1990, allowing for assessment of the academies' effects on their first two classes of graduates.* The academies offer a rare opportunity to widely replicate a program that is based upon a clear model that, when properly implemented, can lead to improved academic and career performance for at-risk students. It also offers a well structured, productive way of bringing together the education and business communities toward this end. If SB 605 is to be implemented, and many new academies created, further knowledge about their effectiveness and its causes is needed.

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Foreword

The search for better ways to educate is as old as education itself. But perhaps more than in fields such as medicine and engineering, the history of efforts to improve education has been guided more by hope and belief than by data and research.

The study reported here, designed and carried out by PACE analysts Charles Dayton, Alan Weisberg, David Stern, and John Evans is an important contribution to an emerging discipline in education which seeks to change tradition and to assess educational innovations and reforms by the most rigorous research methods possible.

In this evaluation of the Peninsula Academies, a school-within-a-school program designed to give disadvantaged high school students employment skills and prevent them from dropping out, Dayton and colleagues have utilized a longitudinal, quasi-experimental design to assess the program's effectiveness. They found that when the academy model is properly implemented, it can significantly improve student attendance, grades, and motivation.

The findings of this evaluation are important to educators and policy makers in several ways. First, they provide evidence for the potential effectiveness of an important educational program for disadvantaged high school students, a group which if not aided effectively will join the list of dropouts and the unemployed in high numbers.

Second, the PACE evaluation makes clear to administrators of the academy program that full adherence to the program model is essential if its benefits are to be achieved.

Finally, because of the strong methodology on which this evaluation rests, we can regard its findings with uncustomary confidence. This is crucial if, in education as in other traditionally more rigorous disciplines, we are to avoid wastefully pursuing unproductive programs and methods, and instead concentrate education's limited resources on ones we know can produce the improvements that are so critically needed.

James W. Guthrie,
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Policy Analysis for California Education

Policy Analysis for California Education, PACE, is a university-based research center focusing on issues of state educational policy and practice. PACE is located in the Schools of Education at the University of California, Berkeley and Stanford University. It is funded by the William and Flora Hewlett Foundation and directed jointly by James W. Guthrie and Michael W. Kirst. PACE operates satellite centers in Sacramento and Southern California. These are directed by Gerald C. Hayward (Sacramento) and Allan R. Odden (University of Southern California).

PACE efforts center on five tasks: (1) collecting and distributing objective information about the conditions of education in California, (2) analyzing state educational policy issues and the policy environment, (3) evaluating school reforms and state educational practices, (4) providing technical support to policy makers, and (5) facilitating discussion of educational issues.

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Part I

Overview of the Academy Program and History

chapter 1

Introduction

For the past two years, 10 academy programs have been operating in California under state sponsorship. These programs are replications of the Peninsula Academies,* which themselves have been operating since 1981. The academies are directed at reducing dropout rates among "at-risk" high school youth. They combine a modified high school curriculum and structure with exposure to local companies and jobs. Their intent is to improve students' motivation to perform well in school, graduate, and make a successful transition from school to work.

The 10 academies receive state funding from Assembly Bill 3104, passed during the 1984 legislative session. That bill also included a requirement to "evaluate the Peninsula Academies model program and report to the Legislature regarding issues which shall include, but not be limited to, the cost-effectiveness and educational quality of the program." This 1986-87 evaluation report addresses that requirement. The evaluation has been conducted with joint support from the Edna McConnell Clark Foundation and the William and Flora Hewlett Foundation.

Academy History

The two Peninsula Academies originated in the fall of 1981 in the Sequoia Union High School District. They were designed from extensive research and modifications of model programs begun elsewhere. Their purpose was to reduce high dropout rates among at-risk students in that school district. Three years later, their performance was sufficiently compelling for the California State Department of Education to declare them a model program, and Assembly Bill 3104 was passed to replicate them in 10 high schools around the state.

What is an academy? It involves a modified high school program with a number of special elements, including:

- A student selection process designed to enroll students with potential, but whose past performance indicates they are in danger of dropping out

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* Sequoia Union High School District, Redwood City, California

- A school-within-a-school administrative structure, such that academy students in grades 10-12 enroll as a group in three core academic subjects, including English and mathematics, with selected teachers
- A technical course in grades 10-12 designed to provide students with basic job skills in a promising labor-market field (e.g., electronics or health) located nearby
- Strong support from local businesses, including curriculum development, guest speakers, field trip sites, mentors, and work experience
- High school and district support for the program, providing the necessary teacher preparation time, facilities, equipment, curriculum development, and counseling support

The academies address a significant problem. The high school dropout rate in California is approximately 30 percent. Among urban schools and minority youth, this figure often surpasses 50 percent. The loss to these young dropouts is enormous, both in terms of their self esteem and financial future. At the same time, due to the "baby bust," there is a declining number of graduates and an estimated 40 percent drop in the number of youth who will be in the work force by the year 2000. In many areas, a shortage of trained entry-level employees is occurring already.

Thus, on one hand, youths are leaving school with no diploma and limited job skills; on the other hand, the economy is suffering from a lack of well prepared entry-level workers. Given today's intensely competitive international marketplace, high school performance and students' transition to work are issues important not just for California youth or local businesses, but for the nation as a whole.

The current academies represent three-way partnerships among the state, local school districts, and supporting companies. The state provides a $50,000 grant to each district, which must be matched in direct or in-kind support by *both* the receiving district and local business community. Thus, the funding mechanism is designed to encourage cooperation among school districts and private-sector companies in preventing dropouts.

During the 1987 legislative session, Senate Bill 605 was passed to expand the academy replications up to another 15 sites per year for four years. The bill was signed by the governor, but funds were not appropriated for the replications. The current academies continue to be supported under the established system. However, the governor has included the necessary funding in the proposed 1988-89 education budget, and six new programs are currently being selected; additional sites may be selected this fall. Replication sites will receive planning funds in the fall of 1988, leading to the creation of new academies by the fall of 1989.

Senate Bill 605 changes the system by which academies are funded. Instead of a grant provided at the beginning of a school year, districts will receive an amount based on the number of students kept in school who are making normal progress toward graduation, as determined at the end of the school year. Thus, the programs will survive if they are successful; they will be phased out automatically if they are not. The required matching support from sponsoring districts and local business communities will continue. (A copy of SB 605 is attached as Appendix B.)

Site Descriptions

The 10 academy programs are located in eight school districts: four in San Francisco Bay Area high schools, three in or near Sacramento, two in Stockton, and one in Bakersfield. All sites were selected through a grants competition conducted in early 1985 by the State Department of Education. The "Academy School Profile" chart on the next page provides information on these 10 high schools, including enrollment, percentage of limited-English-proficient (LEP) and AFDC enrollment, number of graduates, and student ethnicity.

Evaluation Design

The evaluation includes both process and outcome components. The process evaluation examines successes and problems regarding implementation. This information derives from site visits; interviews with school staff, students, and business representatives; and questionnaires completed at the end of the school year by all involved parties. The process findings are presented in the first part of each case study in Part II and summarized across sites in Part III.

The outcome evaluation employs a comparison group design. This means that a group of students not participating in the academy program was selected at each high school and matched with academy students, and the performance of both groups was tracked. The matching was done in terms of descriptive indicators (age, grade level, gender, and ethnicity) and school records (attendance, credits, courses failed, and grade point averages) from the year prior to the academy students' entry into the program. Both academy and comparison group students were then tracked on these same variables, as well as retention in school. This enabled evaluators to better measure the academy programs' effects on students.

ACADEMY SCHOOL PROFILES

SCHOOL / COUNTY	GRADES SERVED	ENROLLMENT	% L E P	GRADS 1985	% AFDC	STUDENT ETHNICITY (%)						
						AMER IND	ASIAN	PAC ISL'R	FIL.	HISP.	BLACK	WHITE
MOUNTAIN VIEW HIGH SCHOOL SANTA CLARA COUNTY	9 - 12	1,326	3.54	255	1.87	0.00	10.94	0.00	4.37	8.52	4.60	71.57
FRANKLIN SENIOR HIGH SCHOOL SAN JOAQUIN COUNTY	9 - 12	2,228	23.61	262	30.87	0.85	12.52	0.00	1.97	37.21	11.94	35.50
EAST BAKERSFIELD HIGH SCHOOL KERN COUNTY	9 - 12	1,836	3.16	227	11.26	0.71	0.38	0.00	0.44	42.21	9.04	47.22
RIO CAZADERO HIGH SCHOOL SACRAMENTO COUNTY	11 - 12	198	6.57	37	NOT AVAIL	3.03	0.51	0.00	3.54	20.20	20.71	52.02
HIRAM V. JOHNSON HIGH SCHOOL SACRAMENTO COUNTY	9 - 12	3,019	8.65	486	41.03	1.09	17.30	0.00	3.25	14.05	18.82	45.49
OAKLAND TECHNICAL HIGH SCHOOL ALAMEDA COUNTY	9 - 12	1,784	14.97	181	35.75	0.39	5.10	8.02	1.29	2.24	78.42	4.54
OAK RIDGE HIGH SCHOOL EL DORADO COUNTY	9 - 12	950	0.00	160	2.04	0.00	0.21	1.05	0.00	2.11	0.00	96.65
EDISON SENIOR HIGH SCHOOL SAN JOAQUIN COUNTY	9 - 12	2,272	23.02	253	36.24	0.22	15.05	0.00	10.83	37.72	21.39	14.79
SILVER CREEK HIGH SCHOOL SANTA CLARA COUNTY	9 - 12	2,352	23.34	298	15.79	1.11	18.03	0.51	8.06	30.87	12.71	28.61
INDEPENDENCE HIGH SCHOOL SANTA CLARA COUNTY	9 - 12	4,079	31.14	704	9.70	1.03	19.83	0.29	11.28	28.68	7.50	31.38

In addition, the outcome evaluation includes information from two additional sources on academy students. The first was a student questionnaire that collected information on attitudes toward careers, school, and self, and tracked changes from year to year. Questionnaires were administered before students participated in the program and at the end of each school year. A series of items related to students' socioeconomic status was included in these questionnaires. In addition, a standardized achievement test was administered to academy students each spring, tracking their progress from year to year on this dimension.

The 1985-86 report uncovered a number of weaknesses in the evaluation itself. Among these were lack of matched comparison groups at four sites, the apparent lack of comparability of some existing comparison groups, and failure to collect all intended data in some sites. These problems were due largely to inadequate staffing and support for the evaluation.

In contrast, due to two private foundation grants for the 1986-87 evaluation, these problems have been corrected, so that the data base and quality of analysis have been substantially improved. While certain problems still remain, on balance the information available this year allows for considerably firmer conclusions than could be made a year ago.

Report Overview

Part I includes an overview of the academy program and history. Part II includes individual site case studies. There are nine case studies; the two academies in the Eastside Union High School District are jointly administered and identically structured, and they are treated as one case. Each case study contains several sections, including:

- A program description, which includes sections on setting, student profile, program management, and program resources
- A summary of student outcome data on retention, attendance, credits earned, courses failed, and grade point averages, comparing academy and comparison group performance
- Questionnaire responses from students, school personnel, parents, private-sector representatives, and mentors
- A summary

The one exception to this pattern is Edison High School in Stockton, where the program was so incompletely implemented that a full evaluation proved impossible.

Part III provides a cross-site summary of the findings with respect to program implementation, student outcomes, and questionnaire responses. It also offers some conclusions about what is needed to implement a successful academy. Finally, a brief section of recommendations is included.

Part II

Case Studies

chapter 2

The Health Careers Academy

East Bakersfield High School
Kern Union High School District
Bakersfield, California

The Health Careers Academy in Bakersfield, California struggled with substantial administrative and personnel problems during its first year. While problems remained in 1986-87, the program stabilized and progressed. Two dedicated full-time teachers, who had a common planning period and worked together effectively, provided a solid foundation. A "home base" classroom was allocated to the program, enhancing its identity. The school supported the program administratively. Private-sector support developed, including speakers, field trip sites, and mentors. Students testified that the program is having a positive influence on them. While there is still room for improvement, the program seems to be establishing itself at East Bakersfield High School, and talk of adding another academy in the district has begun.

Setting

Bakersfield is located in the California central valley, north of Los Angeles and south of Fresno. Its population is approximately 100,000, and its economy is based largely on agriculture and oil. East Bakersfield High School, one of 10 high schools in the district, was built in the late 1930s and is located on the east side of the city in a low- to middle-income neighborhood. Its student population of approximately 2,000 is composed of 46 percent white, 43 percent Hispanic, 9 percent black, and 2 percent other. Its parent education index puts it at the 26th percentile statewide. Eleven percent of its students come from families receiving AFDC.

Student Profile

In year one, academy planners conducted a substantial "advertising" campaign in 9th grade social studies classes, which resulted in 250 applicants, far more than the program could accommodate. In the spring of 1986, students themselves made these presentations, resulting in a list of interested students substantially smaller but more appropriate for the program. Program teachers then examined the records and backgrounds of applicants in the following respects:

- Aptitude in science, health, and ability to get along with people
- Patterns of underachievement in 9th grade, in terms of attendance, grades, and credits
- Emotional and family problems, including economic disadvantage (in order to include those with such problems as long as they were not too severe for the program to handle)
- Involvement in Gifted and Talented Education (GATE) classes or college preparation tracks (these students were eliminated from consideration)
- A search for at-risk students whom the program could serve effectively

Table 2.1 presents a profile of academy students for 1986-87 by grade level, race/ethnicity, and gender. Data for comparison-group students are also presented.

TABLE 2.1 Student Profile, The Health Careers Academy

	Academy	Comparison Group
Grade Level		
10	39	62
11	48	53
Race/Ethnicity		
Asian	0%	0%
Black	16%	9%
Hispanic	50%	49%
White	32%	41%
Other	2%	1%
Gender		
Female	54%	39%
Male	46%	61%

Program Management

Perhaps the academy's most serious problem arising in its first year concerned staffing. The two teachers involved in developing the program decided at the last moment not to participate. Thus, two teachers who were not involved in initiating of the program became its chief staff members, and neither was particularly committed to its purpose. One of these was pregnant and left during the fall semester. Her replacement, an experienced teacher with a strong health careers background, proved to be a strong addition, and this year became the lead teacher, handling the science classes. Additionally, a new English teacher was hired in 1986-87 who was committed to the program and its students. These two teachers proved to be a strong nucleus around which to build the academy.

The program at East Bakersfield High follows the school-within-a-school academy model, but only in part. During its first year, students enrolled in three academy classes—English, science/lab, and math. This year, the 10th grade program was reduced to just two classes, English and science/lab. Eleventh graders had three classes—English, science, and science/lab. At both grade levels, the science/lab courses included some job preparedness training. English classes were also coordinated to some degree, including lessons related to medicine that employed literature, films, and vocabulary. While the senior curriculum was not fully determined at the time of this writing, it will probably include enrollment in a Regional Occupational Program (ROP) health-related training program, plus one academy lab class.

Other program components were developed in 1986-87 as well, including:

- Guest speakers, including an anesthesiologist, nurse practitioner, surgical transplant nurse, and dental assistant
- Field trips to a dialysis center, birthing center, home for the deaf, and career day program
- Social activities, including a welcoming picnic organized by juniors for sophomores, building a float for homecoming, baby showers for two academy students, and a teachers' birthday party planned by students
- Improved incentive programs, including certificates for students who made the honor roll

In addition, the school provided a temporary structure located on the campus as the science/lab classroom, which gave the program a physical identity and home base. Teachers provided personal and career counseling through close contacts with students. Parental involvement was developed, and parents supported various program activities. School and district administrators seem committed to the program, even to the point of continuing it without state funding if necessary. Indeed, the district is exploring the possible establishment of a Small Business Academy, evidence of the value it attaches to the academy approach.

Attempts to develop private-sector support were also made during 1986-87. These had been largely abandoned the first year because of school-based problems. While no advisory committee was established, this option was being explored. About half the juniors had mentors. Speakers and field trips were organized, as detailed above. Jobs were sought for the summer. And the 1987-88 schedule was structured to allow one of the teachers to spend a half-day each day promoting private-sector support.

Program Resources

During the 1986-87 school year, the two full-time academy teachers spent a total of 2,690 hours teaching. Teachers also spent an additional 205 hours on curriculum development and student recruitment. School and district administrators (including the program director) contributed 335 hours of their time to the academy. Counselors devoted 30 hours, and secretaries devoted 295 hours.

During the course of the year, participants from local businesses made an estimated contribution of 108 hours to the program. Two-thirds of this time was spent giving talks. The remaining one-third was used mainly in helping to manage and coordinate the program. Only 10 hours were reportedly spent in one-to-one mentoring activities with students.

The Health Careers Academy used only one special facility: a computer room used for 10 periods during the year. Equipment and supply items included a monitor, VHS, and cart ($2,000), lab kits ($1,100), and books and magazines ($1,930). These were reportedly purchased with school district general funds rather than the academy grant. No material contributions by businesses were reported.

Student Outcome Data

The most objective form of data by which to judge the effectiveness of an academy is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and other subjective responses from program participants.

Table 2.2 presents differences in outcomes between academy students and comparison groups, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point average, and courses failed.

TABLE 2.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The Health Careers Academy

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	5.5*	0.7	0.1	-0.2	-0.03
1986-87 Outcomes	-3.7	1.9	0.1#	-0.3	-0.08
Class Entering Fall 1986					
1986-87 Outcomes	2.6	1.4	0.1	-0.2	I

* Statistically significant difference

# Estimated from separate regressions for academy and comparison groups

I Insufficient number of dropouts for analysis

Only one difference in Table 2.2 is statistically significant: the first class of academy students had a higher attendance rate than the comparison group in 1985-86. Although the other 13 differences shown in the table are not statistically significant, 12 of them indicate better performance by academy students.

Questionnaire Responses

The following sections provide an overview of responses received through individual questionnaires. Those providing feedback included students, academy personnel, parents of academy students, private-sector participants, and mentors working directly with students.

Student Questionnaires

Table 2.3 presents data from questionnaires administered to academy students. A brief version is administered to all students as they enter the program (pre), asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, asking again about these topics. This version also requests information about program activities and asks students to rate the program. Data are presented by class, so that one can see differences between this year's 10th and 11th grade classes. For the first class (11th graders), responses are presented separately for each year. Numbers reflect either the percentage of students responding (as indicated), or the mean number, depending on the form of the item.

TABLE 2.3 Student Questionnaire Responses, The Health Career Academy (means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre*	Spring 86	Spring 87	Pre	Spring 87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	3.8	3.0	n/a	2.3
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	60%	100%	n/a	65%
b. Other high school teacher	n/a	10%	0%	n/a	8%
c. Parents or other relatives	n/a	80%	40%	n/a	31%
d. Friends	n/a	40%	30%	n/a	46%
e. Academy mentor	n/a	0%	20%	n/a	4%
f. Employer	n/a	10%	10%	n/a	15%
g. School counselor	n/a	40%	20%	n/a	35%
h. School career-center staff	n/a	20%	0%	n/a	42%

	Class 1			Class 2	
continued	Pre*	Spring 86	Spring 87	Pre	Spring 87
Students who had a mentor this year	n/a	0%	30%	n/a	11%
Of these, those who found it useful	n/a	•	•	n/a	•
Students who had a job arranged through the program					
a. Summer job	n/a	0%	0%	n/a	15%
b. School-year job	n/a	0%	10%	n/a	0%
Of these, those who found it useful	n/a	•	•	n/a	•
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	5.6	6.6	n/a	4.6
b. Spring semester	n/a	5.1	4.6	n/a	4.4
Those who found speakers helpful	n/a	90%	100%	n/a	81%
How many field trips did you attend with the academy?					
a. Fall semester	n/a	2.9	2.0	n/a	0
b. Spring semester	n/a	3.2	1.6	n/a	0
Those who found field trips useful	n/a	78%	89%	n/a	n/a
Did you get the extra help you needed with your school work during the past year?	n/a	80%	70%	n/a	70%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	90%	60%	n/a	73%
b. Another academy teacher	n/a	60%	70%	n/a	8%
c. A peer tutor	n/a	0%	10%	n/a	0%
d. Another student or friend	n/a	60%	90%	n/a	19%
e. Parent(s)	n/a	40%	40%	n/a	27%

	Class 1			Class 2	
continued	Pre*	Spring 86	Spring 87	Pre	Spring 87
Program Ratings					
Academy equipment was good or excellent	n/a	50%	30%	n/a	11%
Academy materials were good or excellent	n/a	70%	30%	n/a	22%
Academy schedule better than regular one	n/a	60%	60%	n/a	52%
Felt strong connection between what was studied in school and post-graduate plans	n/a	n/a	93%	n/a	85%
Liked academy better than regular program	n/a	89%	89%	n/a	78%
Career-Related Plans					
Have definite plans for the first two years after graduation	10%	40%	60%	•	•
If have plan, it includes					
a. A job	78%	67%	56%	•	•
b. Junior college, college, or university	33%	78%	67%	•	•
c. Vocational or technical training	11%	33%	33%	•	•
d. Military service	11%	22%	11%	•	•
e. Marriage and housekeeping	11%	0%	0%	•	•
Have a long-term career goal	67%	78%	89%	•	•

		Class 1		Class 2	
continued	Pre*	Spring 86	Spring 87	Pre	Spring 87
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	80%	90%	100%	•	•
Feel it is very important to gain job skills while in school	70%	90%	90%	•	•
Found classwork interesting during past year	50%	70%	80%	•	•
Feel good about self after past year	80%	100%	80%	•	•
Would not want to be someone different	78%	100%	89%	•	•
Feel success is not mainly due to luck	80%	80%	90%	•	•

* Adminstered as students enter program
•= Missing data
n/a= Not applicable

School Personnel Responses

At the end of the school year, five members of the school staff completed questionnaires, providing their responses to the program. These included the school principal and vice principal, the two main program teachers, and a counselor. Their responses included the following:

- The academy's facilities, instructional materials, and curriculum were all rated "good" to "excellent," while equipment was rated "poor."
- Nonacademy teachers at the high school were rated as "slightly supportive" of the program, counselors as "somewhat supportive," and administrators as "very supportive."
- Program planning was rated from "good" to "excellent."
- Cooperation and support from the private sector was rated "not very effective."

- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 5.4 "in concept" and 5.8 "as implemented."

- The program's greatest weakness was its lack of private-sector support, public visibility, and equipment.

- The program's greatest strengths were its administrative support, high-quality staff, and supportive relationships between staff and students.

Parent Responses

Four parents of academy students completed questionnaires at the end of the school year. Their responses included the following:

- Three parents rated the program as "excellent," the fourth as "good."

- All four reported that their children were "much more interested in school and learning" since joining the academy.

- Parents were involved with the program in several ways, including attending school events, helping with social events, meeting with teachers at school, and helping their children with homework.

- In response to how well they had been kept informed of their children's progress in school, all four parents responded "very well."

- Suggestions for improvements included widening the program beyond health and obtaining more equipment.

Private-Sector Responses

Three private-sector representatives associated with the academy completed questionnaires at the end of the school year. Their responses included the following:

- Asked whether the academy's curriculum would prepare students for jobs locally, one respondent said "yes," and two "don't know."

- Asked about communications with the program, one rated this as "good," one "poor," and one "don't know."

- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 5.5 "in concept" and 5.5 "as implemented."
- The program's greatest weakness was poor student attendance.
- The program's greatest strengths were teacher dedication and added direction for students' lives.

Mentor Responses

Five academy mentors completed questionnaires at the end of the school year. Their responses included the following:

- On average, mentors met 1.4 times with their students and talked with them twice by telephone.
- Asked if the program was providing students with job skills needed by area companies, all five mentors responded "don't know."
- Asked to rate the mentor program, one responded "highly useful," one "O.K.," one "not useful," and two "don't know."
- The program's greatest weaknesses were lack of a coordinating body outside school, student motivation, and scheduling.
- The program's greatest strengths were the concern of teachers and the potential for improving the workforce.

Summary

The Health Careers Academy made progress during 1986-87. A home base classroom was established, and two capable and dedicated teachers took charge of the program. The main weaknesses were insufficient private-sector involvement and support and the need for improved materials and equipment.

Outcome data presented only one statistically significant difference between program and comparison group students (i.e., attendance during 1985-86). Yet of 13 differences between the two groups, 12 favored academy students. Responses from both student and adult questionnaires were also largely positive.

This program seems poised for success, if it can marshall the additional resources needed for full implementation. In particular, more support is needed for the two lead teachers, both within the school and in developing private-sector involvement. If this is forthcoming, there is good reason to believe this will be a very successful academy.

chapter 3

Edison Financial Academy

Edison High School
Stockton Unified School District
Stockton, California

The Edison Financial Academy, in the estimates of its own staff, began as less than a "real" academy, and it never overcame this shortcoming. It lacked many of the basic components that define an academy, including a school-within-a-school structure, coordinated technical and academic classes, a three-year sequence of courses, and business involvement and private-sector supports. Clear district and school administrative support for the academy concept and components was also missing. Indeed, when the district was asked by the State Department of Education this year to demonstrate certain of these features or lose its funding, the district chose the latter, and the program was terminated at the end of its second year.

Setting

Stockton is located south of Sacramento and north of Modesto in the California central valley. It has a population of approximately 150,000 and an economy based largely on agriculture and, more recently, services. Edison High School is an older facility located on the city's south side, in a low- to middle-income neighborhood. It has an ethnically mixed student population of approximately 2,300 (38 percent Hispanic, 26 percent Asian/Pacific Islander, 21 percent black, and 15 percent white). Its parent education index ranks it at the 12th percentile statewide. Thirty-six percent of its students come from families receiving AFDC.

Student Profile

A problem during the program's first year was that no clear student selection system was developed. The intent was that students with the usual academy profile would be identified, told about the program, and given an opportunity to enroll if interested. Instead, students were simply assigned to the program by school counselors who had little understanding of the academy's nature or purpose. As a result, the program became largely a repository for students whom counselors "didn't know what else to do with."

This problem was recognized in 1986-87, and attempts were made to enroll appropriate students, using a voluntary process that included interviews. Average to below-average performing students were sought, particularly those with high unexcused absence rates. Unfortunately, by this time almost all the first-year students had left the program, so no multiple-year effect was detectable. Further, there was no attempt to limit new enrollment to the 10th grade, thus to begin a new three-year program. In fact, the fall 1986 enrollees came from all four grade levels. A profile of these students and their comparison group counterparts is presented in Table 3.1.

TABLE 3.1 Student Profile, Edison Financial Academy

	Academy	Comparison Group
Grade Level*		
Fall 1985 entrants	30	-
Fall 1986 entrants	54	105
Race/Ethnicity**		
Asian	6%	5%
Black	25%	17%
Hispanic	47%	44%
White	8%	13%
Other	14%	22%
Gender**		
Female	55%	61%
Male	45%	39%

* Few students that enrolled in the program in 1985-86 continued in 1986-87, so the number involved in each cohort, rather than a grade-level breakdown, is listed here. Each cohort contained students from several grade levels. There was no comparison group for the first year.

** Data on ethnicity and gender are for the second cohort only.

Program Management

Edison High School seemed a good choice for an academy because of its large population of minority students and its choice of banking as a vocational focus. Initial efforts to establish private-sector support proved promising, with several banks demonstrating interest in the program. Initial efforts at developing a curriculum were also encouraging—employability-skills training materials were obtained from the California Industry-Education Council and contributions were received from interested banks. A wing of the high school with four classrooms was refurbished to give the program a home.

However, a number of problems hindered the program from the beginning, and these proved to be substantial. First, the vice principal and teachers involved in developing the grant application were not substantially involved in program implementation. With one exception, teachers were assigned to the program, rather than choosing it. The lead teacher was skeptical about the program and accepted her position under a threat of being laid off.

The school-within-a-school structure with block scheduling and coordinated technical and academic courses never developed. Students had a business class, covering basic employability and banking skills, but only a few had any academic courses as part of their program.

While these problems were recognized, few of them were solved in 1986-87. The business class continued, but coordinated academic classes with block scheduling were developed for only about a fourth of the academy students. In addition, few of the other activities called for in the model were developed. There were two business speakers, no field trips, no mentors, no summer jobs for juniors, few parent contacts, and no private-sector advisory body. In fact, by this point most private-sector interest had disappeared. A newsletter begun in the fall closed because of lack of interest. There was not enough student interest to initiate an academy club.

Two teachers new to the high school were assigned part-time to the program (in English and history), and the two remaining full-time teachers (in business and math) tried to carry on. While they remained supportive of the program's intent, they recognized the degree to which this replication failed to meet it. As the math teacher said, "It is a program in name only." The history teacher confessed that the relationship between history and the program's business focus was unclear to him.

Also, there was an almost complete absence of administrative responsibility for the program. The vice principal who wrote the grant application assigned implementation responsibilities to another vice principal, who was new to the school and who knew nothing of the program's origin or purpose. She was overwhelmed with other responsibilities, and in her own honest words, she "didn't do a thing. I touched base when

I could." While the four teachers were given a common preparation period, they made no use of this to meet. The district administration also provided no guidance, and, in fact, was leaderless itself much of the year, with continual staff and superintendency changes.

By the fall of 1986, the State Department of Education became aware of the degree to which the program deviated from the academy model and wrote to the district administration to insist that at least the school-within-a-school model be followed, with block-scheduled technical and academic classes. The district was given several weeks to show evidence that it met this requirement. When a site visit by the state administrator failed to demonstrate the required changes, the district itself decided to end the program at the end of the 1986-87 school year. Thus, the Edison Financial Academy was terminated. In spite of this, the school plans a program with a similar structure and purpose for next year, under new teacher leadership.

Student Outcome Data

The most objective form of data by which to judge the effectiveness of an academy is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. The evaluation design calls for tracking each of these indicators on a year-by-year basis, for both academy students and a matched comparison group. This provides a picture of developments over the three-year course of the program and provides a reasonable standard by which to judge academy students' progress.

At Edison High School a number of factors made it difficult to implement this evaluation design. First, in year one the program did not follow the academy model of enrolling only 10th graders, but accepted students at several grade levels. Almost all of these students left the program by the end of the first school year. A new group of students was admitted in the fall of 1986, again at several grade levels. This made year-to-year tracking impossible.

Further, during the first year, the program chose not to track a comparison group of students (an option it was given). Thus, no comparison group data were collected. While a comparison group was identified and tracked in 1986-87, its data relates only to this year's academy students.

A third problem was that a significant number of this year's academy students were 9th graders, therefore, the only available pre-program data was from 8th grade. Since students attended various junior high schools, there is no assurance that data from 8th grade are either standard across schools or comparable to those in high school. This makes both comparison group matching and year-to-year tracking nearly impossible.

For all these reasons it was decided not to attempt an analysis of outcome data for the Edison Financial Academy. What little data were available for analysis suggested a negative program influence on students. For example, this year's academy students have higher dropout rates, earned fewer credits, have lower grade point averages, and failed more courses than their matched comparison group counterparts. None of these differences are very large, but there is certainly no evidence of positive program impact.

Questionnaire Responses

Student Questionnaires

In addition to many other problems at this site, no incoming student questionnaires were administered in the fall to new students. While the year-end versions were administered to those students still enrolled in the spring, given the inability to analyze other types of data and the fact that the program had already been terminated, these were not analyzed. Thus no student questionnaire responses are available.

School Personnel Responses

At the end of the school year, the four teachers involved in the academy completed questionnaires, providing their responses to the program. Their responses included the following:

- The academy's facilities, equipment, instructional materials, and curriculum all received average ratings of "good."
- Nonacademy administrators, teachers, and counselors at the high school all received average ratings of "slightly supportive."
- Program planning was rated from "average" to "poor."
- Cooperation and support from the private sector was rated as "nonexistent."
- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 5.0 "in concept" and 1.75 "as implemented."

- The program's weaknesses were staff apathy, student disinterest, lack of administrative and counseling support, lack of teacher orientation and direction, and lack of private-sector coordination.

- The program's strengths were the academy's potential effect on at-risk students and the promise it showed.

No parent, private-sector, or mentor questionnaires were received.

Summary

The Edison Financial Academy was, by almost any reckoning, a failure. It failed to develop almost all the essential elements of an academy and, as a result, it had no measurable positive effect on students. Indeed, it may have had some negative influence. It offers a case study of what can go wrong when a new site fails to understand and implement a model program developed elsewhere.

chapter 4

The Franklin Food Services Academy

Benjamin Franklin High School
Stockton Unified School District
Stockton, California

The Franklin Food Services Academy encountered a number of serious problems in 1986-87, mostly relating to administrative support. While it was well implemented in terms of technical training in food services, and enjoyed moderate private-sector support, it failed to develop the school-within-a-school structure and block scheduling that defines an academy administratively. When confronted by the State Department of Education on this point, district administrators made some efforts to comply with the model but never fully succeeded. Thus, like its sister program at Edison High School, this program was terminated at the end of the 1986-87 school year. However, an even more ambitious program, based on the academy model but under different funding, was planned for the fall of 1987.

Setting

Stockton is located south of Sacramento and north of Modesto in the California central valley. It has a population of approximately 150,000 and an economy based largely on agriculture and, more recently, services. Franklin High School is an older facility located on the east side of the city, in a low- to middle-income neighborhood. It has a student population of approximately 2,200, composed of 37 percent Hispanic, 35 percent white, 13 percent Asian, 12 percent black, 2 percent Filipino, and 1 percent American Indian. Its parent education index places it at the 13th percentile statewide. Thirty-one percent of its students come from families receiving AFDC.

Student Profile

The Franklin academy developed a precise student selection procedure during its planning period and has followed this consistently. As a consequence, the academy enrolled students appropriate for the program. This procedure includes several steps:

- Notifying 9th grade teachers and counselors of the program and its intended target group and seeking nominations of students who meet the target-group profile (record of poor attendance, low achievement, poor motivation, and minimum 6th grade standardized test scores)
- Circulating informational flyers to students themselves
- Holding informational meetings for interested or nominated students
- Conducting interviews with interested students who qualified
- Holding informational meetings for parents of interested students in which they must sign permission or support forms for their son or daughter

The profile in Table 4.1 demonstrates how program students compare with their matched comparison groups (grades 10 and 11) in terms of race/ethnicity and gender for the past year.

TABLE 4.1 Student Profile, The Franklin Food Services Academy

	Academy	Comparison Group
Grade Level		
10	23	16
11	40	19
Race/Ethnicity		
Asian	2%	6%
Black	19%	6%
Hispanic	34%	50%
White	38%	33%
Other	8%	6%
Gender		
Female	55%	48%
Male	45%	52%

Program Management

Responsibility for management of the program at Franklin High School was never fully assumed by any administrator. The principal was supportive of the program but was involved only when particular problems arose.

Program administration was delegated to a teacher in charge of high-risk youth. This teacher attended advisory board meetings and maintained a loose connection to the program, but he had many other responsibilities and did not view the academy as his primary responsibility. Thus, the only person with operational responsibility for the program was the lead teacher, who everyone feels did a fine job, but who was limited by the lack of higher-level support.

The program never fully implemented the school-within-a-school structure that is part of the academy model. When the state recognized this in the fall of 1986 and confronted the district, attempts were made to comply. However, the main change was to place certain students in competency-based math and reading classes, which contained nonacademy students as well. In some cases, students were placed in classes too basic for their abilities, causing understandable hard feelings. Also, the district never accepted the idea of small classes, because of their expense, undermining this element of the academy model from the start.

One well implemented component was the food services technical classes and training. The lead teacher taught these classes, and she related well to the academy students. Further, students gained sufficient skills (cooking, waiting on tables, preparing trays) to be in constant demand to cater luncheons at the school and a variety of outside events. The lead teacher estimated that academy students performed 200 jobs during the school year.

Other school-based components were instituted as well. A counselor assigned to the program became involved in helping academy students address both personal and school-related problems. A career center coordinator worked with students, helping to develop career plans, a resume, and interviewing skills. Parental contact continued through the school year. The food center classroom served as a program base, providing academy students a sense of identity.

Private-sector involvement was modest. Several business speakers visited the school during the course of the year. Students were taken on field trips to Red Lion Inn in Sacramento and the Delta Food Exposition in Stockton. Eight juniors had mentors, although the frequency of meetings with them was limited by transportation problems.

Through the efforts of involved employers, students worked at a variety of events outside school. A 10-member advisory board met monthly and included representatives from seven area companies. Delta College was also involved, helping to develop curriculum and providing a speaker.

Unfortunately, when word of the program's cancellation reached the staff and students (it was never personally communicated to academy staff by a district representative, nor were they consulted in the decision), much of the program's momentum dissipated. Private-sector representatives felt betrayed. In some cases, this confirmed their reluctance to get involved with the Stockton Public Schools in the first place. Parents also felt betrayed, having signed forms to support their children through three years of the program. Efforts to develop summer jobs evaporated. Staff morale plummeted.

Program Resources

During the 1986-87 school year, 740 teaching hours were allocated to the Franklin Food Services Academy. This represents the single academy teacher spending 4.11 hours per day in academy classes for 180 days. In addition, that teacher spent 370 hours during the year on program management, curriculum development, and student recruitment. School and district administrators (including the academy director) devoted 325 hours to the program; counselors, 200 hours; secretaries, 50 hours; and an aide, 750 hours.

Participants from local businesses donated an estimated 1,100 hours to the academy during the year. Of this total, 400 hours were spent on job placement and supervision of academy students, 300 hours on one-to-one mentoring, 150 hours giving talks, and 250 hours on program management and coordination.

The Food Services Academy made use of a kitchen/classroom belonging to the school district, with an estimated rental value of $15,000 per year. New equipment (stoves, ovens, a dishwasher, etc.) was purchased for $75,000 with money from the state grant or donated by local businesses. Materials (uniforms, texts, films, paper) were purchased for $5,000 with state grant or local district funds or donated. One thousand dollars spent on student recognition and social events also came from these three sources.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 4.2 presents differences in outcomes between academy students and the comparison groups, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point average, and courses failed.

TABLE 4.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The Franklin Food Services Academy

			Courses	Dropout	
	Attendance	Credits	GPA	Failed	Probability
Class Entering Fall 1985					
1985-86 Outcomes	7.0	14.4*	0.5*	-0.7	-0.03
1986-87 Outcomes	10.9	9.4	0.0	0.7	0.53*
Class Entering Fall 1986					
1986-87 Outcomes	7.7	14.8*#	1.0*	0.3#	I

* Statistically significant

# Estimated from separate regressions for academy and comparison groups

I Insufficient number of dropouts for analysis

Table 4.2 portrays mixed results. Both classes of academy students in the first year accumulated significantly more course credits and achieved significantly better grades than comparison groups students. However, students in the first academy class had a significantly higher probability of dropping out of school than did comparison students in 1986-87. Of the nine differences that were not statistically significant, eight indicated better performance by academy students.

Questionnaire Responses

The following sections provide a general overview of responses received through individual questionnaires. Those providing feedback included program students, academy personnel, parents of academy students, private-sector participants, and student mentors.

Student Questionnaires

Table 4.3 presents data from questionnaires administered to academy students. A brief version is administered to all students as they enter the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, asking again about these topics. This version also requests information about program activities and asks students to rate the program. Data are presented by class, so that one can see differences between this year's 10th and 11th grades. For the first class (11th grade), responses are presented separately for each year. Numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item.

TABLE 4.3 Student Questionnaire Responses, The Franklin Food Services Academy (means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	1.0	1.6	n/a	2.1
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	80%	80%	n/a	33%
b. Other high school teacher	n/a	0%	20%	n/a	7%
c. Parents or other relatives	n/a	40%	20%	n/a	40%
d. Friends	n/a	20%	20%	n/a	7%
e. Academy mentor	n/a	0%	0%	n/a	0%
f. Employer	n/a	20%	0%	n/a	13%
g. School counselor	n/a	40%	60%	n/a	33%
h. School career-center staff	n/a	40%	60%	n/a	60%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Students who had a mentor this year	n/a	0%	100%	n/a	7%
Of these, those who found it useful	n/a	•	•	n/a	•
Students who had a job arranged through the program					
a. Summer job	n/a	20%	20%	n/a	7%
b. School-year job	n/a	0%	0%	n/a	0%
Of these, those who found it useful	n/a	•	•	n/a	•
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	2.6	2.6	n/a	1.8
b. Spring semester	n/a	8.6	2.2	n/a	.7
Those who found speakers helpful	n/a	100%	100%	n/a	62%
How many field trips did you attend with the academy?					
a. Fall semester	n/a	0	0	n/a	0
b. Spring semester	n/a	2.4	1.2	n/a	.9
Those who found field trips useful	n/a	80%	100%	n/a	55%
Did you get the extra help you needed with your school work during the past year?	n/a	100%	100%	n/a	53%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	60%	60%	n/a	47%
b. Another academy teacher	n/a	20%	100%	n/a	20%
c. A peer tutor	n/a	0%	0%	n/a	7%
d. Another student or friend	n/a	20%	20%	n/a	53%
e. Parent(s)	n/a	40%	60%	n/a	40%

continued	Class 1 Pre	Class 1 Spring '86	Class 1 Spring '87	Class 2 Pre	Class 2 Spring '87
Program Ratings					
Academy equipment was good or excellent	n/a	60%	100%	n/a	60%
Academy materials were good or excellent	n/a	60%	80%	n/a	47%
Academy schedule better than regular one	n/a	100%	80%	n/a	67%
Felt strong connection between what was studied in school and postgraduate plans	n/a	n/a	100%	n/a	60%
Liked academy better than regular program	n/a	100%	100%	n/a	80%
Career-Related Plans					
Have definite plans for the first two years after graduation	33%	33%	67%	33%	67%
If have plan, it includes					
a. A job	100%	67%	67%	67%	22%
b. Junior college, college, or university	67%	67%	67%	67%	56%
c. Vocational or technical training	33%	33%	33%	0%	22%
d. Military service	33%	0%	0%	0%	11%
e. Marriage and housekeeping	0%	0%	0%	11%	0%
Have a long-term career goal	67%	67%	67%	44%	56%
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	67%	67%	100%	100%	78%
Feel it is very important to gain job skills while in school	100%	67%	100%	89%	100%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Found classwork interesting during past year	33%	100%	67%	33%	11%
Feel good about self after past year	67%	67%	100%	78%	89%
Would not want to be someone different	67%	100%	100%	67%	56%
Feel success is not mainly due to luck	100%	100%	100%	44%	67%

-= Missing data
n/a= Not applicable

School Personnel Responses

At the end of the school year, five members of the school staff completed questionnaires providing their responses to the program. These included the principal, career center counselor, program counselor, and two academy teachers. Their responses included the following:

- The academy's facilities, equipment, instructional materials, and technical curriculum were all rated from "good" to "excellent."
- Nonacademy teachers, counselors, and administrators at the high school were rated from "slightly" to "very" supportive.
- Program planning received an average rating of "good."
- Cooperation and support from the private sector were rated from "somewhat" to "very" effective.
- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 6.6 "in concept" and 4.2 "as implemented."
- The program's greatest weaknesses were its lack of district support and lack of core academic classes as called for by the academy model.
- The program's greatest strengths were the support the program gave its at-risk students and the quality of the lead teacher.

Parent Responses

Three academy parents completed questionnaires at the end of the school year. Their responses included the following:

- Two parents rated the program as "excellent," the third as "average."
- All three reported improvements in their child's attitude toward school and learning since joining the academy.
- The only way parents were involved in the program in 1986-87 was by helping their children with homework.
- In response to how well they had been kept informed of their child's progress in school, two parents said "very well," the third "poorly."
- No suggestions were offered for program improvements.

No private-sector mentor questionnaires were received.

Summary

The academy's main problem of 1985-86 continued in 1986-87, namely, the absence of a full school-within-a-school set of academic classes. Due to this problem and the district's inability to meet the academy model, district administrators decided to end the program in June 1987. Thus, evaluation findings became largely irrelevant, at least to this program.

In spite of this, there are indications of positive program impact. Eleven of 13 differences between program and comparison group students favor academy students, and four of these are statistically significant (credits and grades, both classes, their first program year). Responses from both student and adult questionnaires were also predominantly positive.

chapter 5

The Corporate Academy

Hiram Johnson High School
Sacramento City Unified School District
Sacramento, California

The Corporate Academy at Hiram Johnson High School is a large, ambitious program with a full complement of classes. It is set in a large, inner-city high school with a diversity of students. It operated with four full-time and five part-time teachers in 1986-87 and gained substantial acceptance at the high school. It is well equipped with AT&T computers, having spent much of its first-year grant on this equipment.

Private-sector support developed moderately, with a partial mentor program, a few speakers and field trips, and summer jobs for approximately 15 juniors. While the program has strong support and leadership at the high school, its greatest weakness is lack of district support, where it tends to get lost in the bureaucracy and is viewed mainly in budget terms.

Setting

Sacramento, the state capitol, is the largest city in the California central valley, with a population of approximately 300,000. It is a fast-growing city with a healthy, diverse economy, including agriculture, state government, and services. Hiram Johnson is one of 10 high schools in the district (the city includes other districts). It is a relatively modern facility located on the city's south side in an inner-city neighborhood. Its student population of approximately 3,000 is composed of 46 percent white, 19 percent black, 17 percent Asian, 14 percent Hispanic, 3 percent Filipino, and 1 percent American Indian. Its parent education index places it at the 51st percentile statewide. Forty-one percent of its students come from families receiving AFDC.

Student Profile

The program used a well defined selection system the first year. Ninth grade students were told about the program, and those who expressed interest applied. Participants were then selected using several criteria:

- Standardized test scores that are low but not more than three years behind grade level (5th grade level when tested in 8th grade)
- Poor attendance, specifically more than 20 percent absences
- Credit deficiencies of 10 credits or more (of 60 expected in 9th grade)

Parents were asked to attend an informational meeting and to sign a permission and support form.

In 1986-87, the same general plan was used but somewhat less consistently. Many students learned of the program through word of mouth, rather than through structured presentations. While students still applied for the program and were filtered through the above criteria, the program's manager felt that students were screened less thoroughly. Plans were in place to correct these problems for the third year.

Teachers stated that they can best serve students who genuinely want to be in the program, and since most students in the school are "at-risk," teachers asserted that interest is the best criteria on which to distinguish appropriate candidates.

Table 5.1 presents a profile of academy students this year by grade level, race/ethnicity, and gender. Figures for the comparison groups are also presented.

TABLE 5.1 Student Profile, The Corporate Academy

	Academy	Comparison Group
Grade Level		
10	53	119
11	70	86
Race/Ethnicity		
Asian	11%	8%
Black	30%	26%
Hispanic	21%	23%
White	37%	36%
Other	1%	8%
Gender		
Female	51%	43%
Male	49%	57%

Program Management

The program director is also the school's outreach consultant. He taught the 10th grade academy computer classes last year, but this year his time was spent on school administrative duties, one of which was managing the academy. He was unable to secure the extra preparation period provided for teachers the first year. This was missed, but teachers maintained looser ties on their own, meeting over lunch or whenever they could. All program teachers were volunteers. The staff this year included:

- A full-time English teacher, who taught both 10th and 11th grade
- A full-time history teacher, who taught two 10th grade world civics classes and three 11th grade U.S. history classes
- A full-time math teacher, who taught two pre-algebra classes, two algebra classes, and one business math class
- A four-fifths time computer teacher, who taught both sophomores and juniors (sophomores are taught computer literacy and basic programming, juniors are taught business applications, seniors conduct individual projects)
- Several other classes to supplement the above, including two science, one language arts, and two computer

While all classes were block scheduled during the morning the first year, this was not possible in 1986-87, and classes were spread through the day, making it harder to arrange field trips and other programwide activities. There was some coordination between academic and vocational curriculum. Partly this involved using computers for assignments in other subjects. Teachers related academic subjects to employment realities, and English students prepared resumes, practiced interviewing, and so on.

Parental contact was maintained—teachers called home when students were absent, failed to complete homework, or had behavior problems. Most counseling was handled by the director, who had an academy office which made this feasible. He dealt with a variety of student needs, encompassing academic, scheduling, school, career, and personal topics.

Private-sector support was developed this year, primarily by the director, with help from other teachers on major activities. It was difficult to fit this time-consuming responsibility into a school schedule, given the schedules most employees have. However, support was demonstrated on several counts:

- While there is an advisory board, it met infrequently in 1986-87. It played a more important role last year, helping to develop curriculum.
- There were three speakers (fewer than last year). This activity was complicated by the lack of morning block scheduling and a common preparation period for teachers.
- Only two field trips occurred, for the same reason.
- Approximately 25 juniors had mentors. This was voluntary, and all students who asked for a mentor got one. Interest in this aspect of the program increased as students became familiar with the concept and spread its reputation by word of mouth.
- A few summer jobs were provided for juniors, although only about 15 students met all the program's requirements for this, and most who worked got jobs through their mentors or on their own.

Much of the private-sector support was obtained through the Chamber of Commerce Education Committee. While the program seems well regarded by corporate sponsors, the need for more time to coordinate this component is strongly felt by the director.

Probably the most serious problem facing this academy is the school district's waning support. Evidence of this was manifested in several respects:

- Average academy class size was allowed to increase from 20 to 25 this year, due to the district's concern with the expense of smaller classes (average class size in the district is about 30).
- The teacher's extra preparation and coordination period was dropped, even though it is part of the academy model.
- The district would not provide substitutes to allow academy teachers to have staff development time, particularly to explore the use of computers in other subjects.

The Corporate Academy was also the last site from which a district superintendent sent a (requested) letter to the State Department of Education expressing support for the academy and its basic components and promising to use the grant funds exclusively for the program. This letter was not provided until the end of the summer, causing uncertainty about the program's continuation and making it difficult to plan for the next year.

Program Resources

Five teachers spent a total of 4,500 hours instructing academy classes during the 1986-87 school year. This represents an average of five hours per day per teacher over a 180-day year. In addition, teachers reportedly spent 900 hours on curriculum development and student recruitment. School administrators (including the academy director) contributed an estimated 684 hours to the program, counseling (including testing at the career center) occupied 186 hours, and secretaries devoted 36 hours to the academy during the year.

Participants from local businesses were estimated to have contributed a total of 196 hours to the academy program during the year. Of that total, 102 hours were spent in one-to-one mentoring with students, 64 hours were devoted to program management and coordination, and 30 hours were spent giving talks.

The school district expended $3,000 modifying the school's computer facility (providing additional outlets and air conditioning) and $1,000 remodeling an office for academy use. Local businesses donated 10 complete Hewlett Packard computer systems at $3,500 each. The state grant was used to purchase 10 printers at $350 each and 20 AT&T 6300 computers at $1,450 each.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 5.2 presents differences in outcomes between academy students and the comparison groups, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point average, and courses failed.

TABLE 5.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The Corporate Academy

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	NA	7.6 *	0.3	-1.1*	I
1986-87 Outcomes	1.3	-3.0	-0.3	0.5	0.08
Class Entering Fall 1986					
1986-87 Outcomes	7.1 *	5.3	0.4 *	-1.1	I

* Statistically significant

# Estimated from separate regressions for academy and comparison groups

I Insufficient number of dropouts for analysis

Four of the differences in Table 5.2 are statistically significant, and all four reflect better performance by academy students than by the comparison group. The first class of academy students accumulated significantly more course credits and failed a smaller number of courses than its comparison group in 1985-86. The second class of academy students had significantly better attendance and grades than its comparison group in 1986-87. Of the eight remaining differences shown in the table, four indicate better performance by academy students.

Questionnaire Responses

The following sections provide a general overview of responses received through individual questionnaires. Those providing feedback include program students, academy personnel, parents of academy students, private-sector participants, and student mentors.

Student Questionnaires

Table 5.3 presents data from questionnaires administered to academy students. A brief version is administered to all students as they entered the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, asking about these topics again. This version also requests information about program activities and asks students to rate the program. Data are presented by class, so that one can see differences between this year's 10th and 11th grade classes. For the first class (11th grade), responses are presented separately for each year. The numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item.

TABLE 5.3 Student Questionnaire Responses, The Corporate Academy
(means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	4.0	3.7	n/a	3.7
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	67%	42%	n/a	47%
b. Other high school teacher	n/a	4%	0%	n/a	16%
c. Parents or other relatives	n/a	33%	29%	n/a	47%
d. Friends	n/a	25%	33%	n/a	34%
e. Academy mentor	n/a	0%	13%	n/a	8%
f. Employer	n/a	0%	4%	n/a	5%
g. School counselor	n/a	8%	4%	n/a	13%
h. School career-center staff	n/a	21%	25%	n/a	47%
Students who had a mentor this year	n/a	5%	27%	n/a	21%
Of these, those who found it useful	n/a	•	•	n/a	75%
Students who had a job arranged through the program					
a. Summer job	n/a	0%	0%	n/a	8%
b. School-year job	n/a	0%	4%	n/a	3%
Of these, those who found it useful	n/a	•	•	n/a	50%

continued	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	1.9	.3	n/a	.4
b. Spring semester	n/a	2.2	.8	n/a	.4
Those who found speakers helpful	n/a	71%	57%	n/a	36%
How many field trips did you attend with the academy?					
a. Fall semester	n/a	1.9	.4	n/a	0
b. Spring semester	n/a	2.7	.6	n/a	0
Those who found field trips useful	n/a	81%	75%	n/a	n/a
Did you get the extra help you needed with your school work during the past year?	n/a	57%	48%	n/a	45%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	57%	44%	n/a	66%
b. Another academy teacher	n/a	30%	35%	n/a	29%
c. A peer tutor	n/a	4%	0%	n/a	3%
d. Another student or friend	n/a	9%	30%	n/a	26%
e. Parent(s)	n/a	22%	26%	n/a	32%
Program Ratings					
Academy equipment was good or excellent	n/a	96%	83%	n/a	59%
Academy materials were good or excellent	n/a	71%	72%	n/a	62%
Academy schedule better than regular one	n/a	57%	17%	n/a	31%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	54%	n/a	65%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Liked academy better than regular program	n/a	96%	70%	n/a	65%
Career-Related Plans					
Have definite plans for the first two years after graduation	21%	21%	33%	27%	24%
If have plan, it includes					
a. A job	32%	42%	21%	46%	42%
b. Junior college, college, or university	68%	68%	68%	54%	58%
c. Vocational or technical training	11%	5%	16%	8%	17%
d. Military service	16%	26%	42%	4%	13%
e. Marriage and housekeeping	0%	0%	5%	9%	0%
Have a long-term career goal	57%	62%	42%	48%	56%
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	63%	83%	71%	57%	57%
Feel it is very important to gain job skills while in school	74%	70%	74%	70%	67%
Found classwork interesting during past year	33%	58%	54%	20%	40%
Feel good about self after past year	86%	90%	67%	55%	72%
Would not want to be someone different	65%	80%	80%	55%	66%
Feel success is not mainly due to luck	86%	100%	77%	59%	66%

•= Missing data
n/a= Not applicable

Parent Responses

Six parents of students in this academy completed questionnaires at the end of the school year. Their responses included the following:

- Three parents rated the program as "excellent," two as "good," and one said "don't know."
- Five reported that their children were "much more interested in school and learning" since joining the academy; the sixth reported "a little more."
- Parent involvement with the program included three parents who helped their son or daughter with homework, three who met with an academy teacher at school, and one who attended an open house.
- In response to how well they had been kept informed of their child's progress in school, four parents responded "very well" and two "moderately well."
- No suggestions for program improvements were offered.

Mentor Responses

Two academy mentors completed questionnaires at the end of the school year. Their responses included the following:

- On average, mentors met twice with their students and talked with them once by telephone.
- Asked if the program was providing students with job skills needed by area companies, one mentor said "yes" and one "don't know."
- Asked to rate the mentor program, one responded "highly useful" and one "O.K."
- The program's greatest weaknesses were lack of assured future funding and lack of information from the school about the students.
- The program's greatest strengths were committment of program staff and students and support from the business community.

No school personnel or private-sector questionnaires were received.

Summary

There are two main problems associated with The Corporate Academy at Hiram Johnson High School: insufficient district commitment and little private-sector involvement. Implementation of the program itself is generally good. If the necessary district support is forthcoming and means can be found to develop needed speakers, field trip sites, mentors, and jobs, the program will be well implemented.

Analysis of data provides some evidence of positive program effect. Of 12 differences between program and comparison groups, nine favor academy students, and four of these are statistically significant. Questionnaire responses from students and adults is also largely positive. While there is clearly room for improvement, if the remaining needs can be met, this program has a good potential for success.

chapter 6

Computech Academy

Mountain View High School
Mountain View-Los Altos Union
High School District
Mountain View, California

Computech Academy faces its third year of operation in 1987-88, challenged by a number of problems, including declining enrollment, changes in teaching personnel, limited private-sector involvement, and the perceived negative image of the program within its host high school. Mountain View High School, where the program is housed in a portable classroom far enough away from the center of the school so that bells ring between periods cannot be heard, is among the most affluent academy replication site schools.

Mountain View High is a largely white, middle class, suburban, and relatively small (1,300) high school. While academy students also can be drawn from Los Altos High School and Shoreline Continuation School, most Computech Academy students come from Mountain View High. The number of students in the district who meet the general profile of an academy student is relatively small, and this, in part, explains low enrollments in the academy program.

In 1986-87, there were sophomore and junior academy classes of 20 and 28 students, respectively, though by year's end the number of juniors had dropped to 14. By December of the 1987-88 school year, there were 19 sophomores, 21 juniors, and 11 seniors in Computech Academy.

These low figures do not reflect a lack of recruiting effort by the school and district. Ninth grade students who fit the academy profile of poor attendance and underachievement are identified at all three schools—Mt. View, Los Altos, and Shoreline. They are contacted individually and through group presentations. But increasingly smaller numbers are choosing to enroll in the academy.

Students are block programmed in the morning, sharing a two classroom portable which was formerly used for business classes and is one of the few air conditioned classrooms on campus. Sophomores take academy English, math, science, and computer literacy. Juniors take academy English, math, and electronics. The plan for the 1987-88 seniors is to have four blocked periods in the morning: English, computer repair, small business preparation, and practical economics. Other required and elective classes are taken in the afternoon outside of the academy. Current plans call for all seniors to work part time during their senior year.

Setting

The combined population of Mountain View and Los Altos is approximately 80,000. Both communities are located in Santa Clara County with its Silicon Valley economy. Unemployment countywide is under five percent. Although the electronics industry fluctuates, the overall trend is toward continuing growth. And growth in electronics has spawned a parallel growth in service industries and jobs. Mountain View High is a sprawling, one-story suburban campus with an educational program stressing college admission.

School officials estimate that 80 percent of the school's graduates continue on to college. Black and Hispanic students compose 13 percent of the school's total population. According to the State Department of Education, parents from the school rank in the top seven percent in education of all parents statewide. Fewer than two percent of the families in the school receive AFDC.

Student Profile

In the first year of program operation, there was no matched comparison group. Two such groups were identified in 1986-87. Table 6.1 compares program students with their matched comparison groups (10th and 11th grades combined) in terms of race/ethnicity and gender for the past year.

Table 6.1 Student Profile, Computech Academy

	Academy	Comparison Group
Grade Level		
10	20	62
11	28	55
Race/Ethnicity		
Asian	2%	0%
Black	15%	8%
Hispanic	9%	13%
White	72%	74%
Other	2%	5%
Gender		
Female	25%	43%
Male	75%	57%

Program Design and Management

The director of pupil personnel is ultimately in charge of Computech Academy, though day-to-day operations are administered by a lead teacher who has one period per day of released time. The personnel director acts as liaison with the State Department of Education and independent evaluators and also prepares the program's budget. But, as his title implies, he has many other district responsibilities.

Within the high school, limited attention has been paid to the academy by administrative staff, except for the dean, who was assigned to help oversee the program and who volunteered to teach in the academy part time. The relative lack of attention by school administration has, according to several Computech teachers, reinforced the program's isolation from the rest of the school. Virtually all program staff expressed a concern about inadequate electronics equipment provided for technical classes.

For the most part, the academy model has been closely followed at Computech. Students are block programmed, and most teachers in the program share a common planning period. But only the lead teacher has an extra planning period. Since only the lead teacher and the electronics teacher spend more than 50 percent of their schedule with academy students, it is not easy to use the common planning period effectively. Classes are small. Though, as already noted, classes are smaller than planned because of enrollment and attrition problems.

Except for the lead and electronics teachers, none of the 1986-87 academy teachers returned in 1987-88. There are several reasons for this. For example, one teacher was a Stanford intern whose assignment at the school ended. But some of the teachers asked not to teach Computech students. They cited as reasons a lack of administrative support, inadequate equipment for the electronics class, and "burnout" from working with difficult students. For the 1987-88 year, the district recruited a new math/science teacher with both experience and interest in working with at-risk students.

Private-sector involvement in the first two years was organized in part through assistance from the Stanford Mid Peninsula Urban Coalition. Both mentors and summer jobs were arranged by Urban Coalition staff, with each junior in 1986-87 being matched with a mentor. Of the 13 eligible juniors (those whose attendance and grades were up to the standards set by the program), all had summer jobs in 1987. About half the placements came from the Urban Coalition and the other half were secured by students themselves. In 1987-88, private-sector relations are managed by the district itself, without assistance from the Urban Coalition.

The program has a business advisory committee, but participation has been limited to a handful of electronics and computer company representatives. In the spring, the advisory group focused on the planned computer repair class for seniors and ways in which local electronics and computer firms could assist. Computer and electronics equipment has been donated by several firms.

Several speakers and field trips were arranged during the year, and there was an overnight camping trip for many Computech students. But some program staff questioned the value of the field trips because of poor student attitude. In general, staff perceive Computech students as the most difficult in the school and feel that not enough resources are provided for them. Some of the mentors agree with this perception. Staff felt that the strongest component of the program was the informal counseling provided, working with students facing pregnancy, drug problems, and abuse in their home lives.

Program Resources

Six teachers reported spending 1,430 hours instructing academy classes during 1986-87, an average of 1.3 hours per day for each teacher during a 180-day year. In addition, teachers reported spending 432 hours on program management and coordination.

District and school administrators (including the academy director) contributed an estimated 560 hours to the program. Counselors reported spending 130 hours with academy students; aides devoted 170 hours to the program; custodians, 270 hours; and secretaries, 97 hours.

Participants from local businesses donated 877 hours to the academy. Of this total, 525 hours were used for one-to-one mentoring activities with students, 167 hours for program management and coordination, 175 hours for job placement and supervision of academy students, and 10 hours for presentations.

Computech Academy used 14 IBM computers and printers belonging to the school district, with a total estimated rental value of $5,600 for the 10-month school year. The school district also spent $2,148 for electronic kits, $1,310 for textbooks, $1,567 for instructional supplies, and smaller amounts for travel, publications, and student recognition. Businesses donated $3,000 in electronic equipment and test devices.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of performance in school. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 6.2 below demonstrates differences in outcomes between academy students and the comparison group, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point average, and courses failed.

Table 6.2 Adjusted Differences Between Academy and Comparison Groups, by Class, Computech Academy

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes		4.1	0.6*	-0.4	I
1986-87 Outcomes	0.6	-0.8	0.1	-0.3	-0.01
Class Entering Fall 1986					
1986-87 Outcomes	-0.4	-2.8#	0.3	0.7	-0.89

#=Estimated from separate repressions for academy and comparison groups.
I=Insufficient number of dropouts for analysis
*=Statistically significant

Only one difference in this table is statistically significant: the first class of academy students achieved significantly better grades than their comparison group in 1985-86. Of the remaining 12 differences shown in the table, eight indicate superior performance by academy students.

Questionnaire Responses

The following sections provide an overview of the responses received through individual questionnaires. Those providing feedback include program students, academy school personnel, parents of academy students, private-sector participants, and student mentors.

Student Questionnaire Responses

Table 6.3 presents data from questionnaires administered to academy students. A brief version was administered to all students at the point they entered the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version was administered at the end of each school year, asking about these topics again. This version also requested information about program activities and asked students to rate the program.

Responses are presented separately for each year. Numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item. Unfortunately, two pages from the year-end questionnaire for 1985-86 were not administered, and, as a result, there is missing data for many items.

Table 6.3 Student Questionnaire Responses, Computech Academy (means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	3.9	3.9	n/a	4.0
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	69%	77%	n/a	38%
b. Other high school teacher	n/a	0%	0%	n/a	0%
c. Parents or other relatives	n/a	15%	46%	n/a	38%
d. Friends	n/a	15%	31%	n/a	25%
e. Academy mentor	n/a	0%	9%	n/a	0%
f. Employer	n/a	8%	15%	n/a	25%
g. School counselor	n/a	8%	54%	n/a	13%
h. School career-center staff	n/a	0%	31%	n/a	25%
Students who had a mentor this year	n/a	0%	100%	n/a	0%
Of these, those who found it useful	n/a	•	•	n/a	•
Students who had a job arranged through the program					
a. Summer job	n/a	0%	0%	n/a	0%
b. School-year job	n/a	85%	0%	n/a	0%
Of these, those who found it useful	n/a	•	•	n/a	•

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	5.6	6.6	n/a	4.6
b. Spring semester	n/a	5.1	4.6	n/a	4.4
Those who found speakers helpful	n/a	90%	100%	n/a	81%
How many field trips did you attend with the academy?					
a. Fall semester	n/a	3.8	3.0	n/a	4.5
b. Spring semester	n/a	3.6	3.5	n/a	3.5
Those who found field trips useful	n/a	85%	77%	n/a	75%
Did you get the extra help you needed with your school work during the past year?	n/a	•	•	n/a	75%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	•	•	n/a	88%
b. Another academy teacher	n/a	•	•	n/a	0%
c. A peer tutor	n/a	•	•	n/a	0%
d. Another student or friend	n/a	•	•	n/a	25%
e. Parent(s)	n/a	•	•	n/a	0%
Program Ratings					
Academy equipment was good or excellent	n/a	•	•	n/a	75%
Academy materials were good or excellent	n/a	•	•	n/a	38%
Academy schedule better than regular one	n/a	•	•	n/a	38%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	75%	n/a	63%

continued	Class 1 Pre	 Spring '86	 Spring '87	Class 2 Pre	 Spring '87
Liked academy better than regular program	n/a	•	•	n/a	75%
Career-Related Plans					
Have definite plans for the first two years after graduation:	22%	46%	[illegible]1%	0%	25%
If have plan, it includes					
a. A job	8%	53%	46%	75%	50%
b. Junior college, college, or university	54%	69%	69%	38%	50%
c. Vocational or technical training	23%	31%	23%	25%	50%
d. Military service	15%	39%	15%	13%	0%
e. Marriage and housekeeping	8%	8%	8%	13%	13%
Have a long-term career goal	46%	62%	62%	38%	50%
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	•	•	•	25%	38%
Feel it is very important to gain job skills while in school	•	•	•	50%	88%
Found classwork interesting during past year	•	•	•	13%	50%
Feel good about self after past year	•	•	•	57%	86%
Would not want to be someone different	•	•	•	63%	75%
Feel success is not mainly due to luck	•	•	•	75%	75%

•= Missing data
n/a= Not applicable

School Personnel Responses

At the end of the school year, five members of the school staff completed questionnaires. These included a school administrator, the program coordinator, a teacher specializing in computer technology, and two classroom teachers. Their responses included the following:

- While the facilities were "average," the program would benefit from more space for the much needed increase in equipment. The curriculum was rated as "good," though it could be more challenging, and an increase in the amount of books and learning materials available is necessary.
- Nonacademy teachers at the high school were rated as only "slightly supportive," and counselors and administrators were seen as just a little more supportive.
- Program planning was rated "average" with the comment that it would be helpful for the teachers to have more time to plan together.
- Private-sector cooperation and support was rated "somewhat effective," again stressing the need for more time to be spent on planning. It was mentioned that mentor cooperation was excellent.
- On a seven-point scale (1=very weak, 7=very strong), the academy received a very strong 6.5 rating for the program "in concept" and a 4.5 "as implemented."
- The program's greatest weaknesses were lack of time, lack of reward and support for teachers in the program, and attitudinal problems on the part of students.
- The program's greatest strengths, despite problems, were that it provided a more positive learning environment and a greater potential for individual instruction and educational success than the students had previously experienced.

Parent Responses

Fourteen academy parents completed and returned questionnaires at the end of the school year. Their responses included the following:

- Eight of the 14 parents rated the program "excellent," and the remaining five responded that it was "good."

- Thirteen parents reported that their children's interest in school markedly improved as a result of the program.

- Parents were involved in the program in several ways. The majority of them attended the open house and assisted with extracurricular activities. They also took a more active part in helping their children with homework and kept in closer contact with teachers.

- Ten of 14 parents felt they were "very well informed" regarding their children's progress in school, and two felt they were "moderately well informed."

- Suggestions for improvement were to expand the program so that it covered more educational requirements (e.g., history), hire more teachers, form a parent support group, and provide parents the opportunity to have more input on program planning and activities.

Private-Sector Responses

Four private-sector representatives completed questionnaires at the end of the school year. Their responses included the following:

- Asked whether the academy's curriculum would prepare students for jobs in the community, three said "yes" and one "don't know."

- When asked to rate communications with the program, one felt it was "excellent," two said "good," and one said "average."

- On a seven-point scale (1=very weak, 7=very strong), the academy received a very strong 6.0 rating for the program "in concept" and a 4.5 "as implemented."

- The program's greatest weaknesses were not enough coordination with the private sector, a lack of skilled teachers, and insufficient equipment for the students.

- The program's greatest strengths were dedication on the part of teachers and the program's effective method of teaching—keeping the children interested and enrolled in school.

Mentor Responses

Six academy mentors completed questionnaires at the end of the school year. Their responses included the following:

- Mentors met with students 10 to 20 times and spoke at least 20 times by telephone.
- Asked whether the academy's curriculum would prepare students for jobs in the community, all six said "yes."
- Five of the six rated the mentor program as "highly useful," and one rated it as "somewhat useful."
- The program's greatest weakness was lack of help for students finding summer jobs.
- The program's greatest strengths were increased involvement of nonteachers—private business representatives, mentors, parents—in education. They also felt the program demonstrates to students that skills learned in school are important and do relate to their goals, thereby increasing a student's desire to participate and stay in school.

Summary

Only one of 13 outcome data measures reported here is statistically significant. The first class of academy students achieved significantly better grades than their comparison group in 1985-86. On eight of the other 12 measures, academy students outperformed the comparison group, but the differences were not statistically significant. Thus, based strictly on outcome measures, the program has not made a major difference in the performance of students.

Both parents and staff, however, believe strongly that Computech Academy is an important alternative for the small number of district youth who do not fit into the mainstream of the school. Parent satisfaction with the program is high.

Still, the program faces significant obstacles to improving student performance. There have been some changes in teachers for the program in 1987-88. Several staff members in interviews stated that district-level support needs to be increased greatly. Enrollment is low, and private-sector participation is weak.

chapter 7

The Health Academy

Oakland Technical High School
Oakland Unified School District
Oakland, California

The Oakland Health Academy enjoys strong school-level leadership and, although it operates in a difficult setting, is a well run program. Due to reduced enrollments and faculty cutbacks at the school, the academy began the year with the loss of one of its first-year teachers. However, it also moved into a newly renovated and expansive classroom, giving it a home base, and acquired several new teachers. As one of four academies in the Oakland school district, it also has a strong base of district support.

The program follows the academy model fully—students take four classes each day as part of the program in both 10th and 11th grades. Private-sector support developed during the year, as students went on a number of field trips and, in many cases, were provided summer jobs. Toward the end of the school year, progress was made in developing the mentor program. And the program acquired a major three-year grant for curriculum development, giving it a strong boost for 1987-88.

Setting

With a population of approximately 350,000, Oakland is the third largest city in the San Francisco Bay Area. Located on the east side of San Francisco Bay, Oakland includes a relatively high minority population and weak economy, particularly compared to wealthy areas that surround it. Oakland Technical High School is one of six comprehensive high schools in the Oakland Unified School District. It is housed in a recently refurbished and attractive older two-story building in an integrated section of North Oakland not far from the border with Berkeley. Its student population of approximately 1,800 consists of 78 percent black, 8 percent Pacific Islander, 5 percent Asian, 5 percent white, 2 percent Hispanic, and 2 percent other. Its parent education index places it at the 27th percentile statewide. Thirty-six percent of its students come from families receiving AFDC.

Student Profile

There are few students at Oakland Technical High School who are not "at risk" in some sense. Thus, the academy selection process involves not so much finding students who are unusually at risk, but rather average students who will benefit from the program because of its motivational features and focus on health careers.

Much of the selection proceeds from recommendations of teachers and counselors familiar with 9th graders. The school uses a tracking system, and, with rare exception, those in Gifted and Talented Education (GATE) are eliminated from consideration. Thus, participants come from the "survey" track, which is composed of the school's average students (one or two years below grade level in reading), and the "skills" track (three or more years below grade level). Among these, students are sought who appear to be performing below their ability, as reflected in low credits or poor attendance. Interest in the program and health careers is also an important consideration.

Table 7.1 presents a profile of the 1986-87 program students by grade level, race/ethnicity, and gender. Comparison group figures are also presented.

Table 7.1 Student Profile, The Health Academy

	Program	Comparison Group
Grade Level		
10	32	42
11	49	41
Race/Ethnicity		
Asian	12%	1%
Black	73%	94%
Hispanic	0	1%
White	8%	4%
Other	7%	0%
Gender		
Female	67%	60%
Male	33%	40%

Program Management

The lead teacher at the high school serves as the program director, as well as its sophomore and junior English teacher. The academy is a separate department at the high school. The program receives good support from the principal and school counselors. There are five other teachers involved in the program, all part-time—a sophomore biology lab (three days/week) and junior physiology lab (five days/week) teacher, sophomore computer lab teacher (two days/week), a sophomore biology teacher, a junior physiology teacher, and a math teacher who teaches several courses (pre-algebra, algebra, geometry), depending on the academy students' abilities.

Three program teachers had a common planning period. Last-minute scheduling changes due to staff cutbacks eliminated this for other teachers. Nevertheless, teachers tended to meet regularly, often over lunch or "catch as catch can." All academy teachers volunteered to participate in the program.

Private-sector support developed satisfactorily in 1986-87. A program advisory committee met three times. With three other academies in the district, there were also meetings among the four academy directors. There was also talk of establishing an academywide steering committee.

There were several speakers and field trips, including one to a medical school where students saw their first cadaver, a highlight of the year. About 20 juniors had summer jobs arranged for them at Children's Hospital. Both sophomores and juniors arranged other jobs as well, although most of these were not related to the health field.

Efforts to develop the mentor program during the year progressed slowly. A series of three breakfasts in June, however, elicited a strong response, and the mentor aspect of this program appeared to be crystallizing over the summer and for next year. Nursing and medical students will be used as mentors, as well as local hospital employees.

At the end of the spring semester, the program won a highly competitive "California Academic Partnership" grant, which is administered by the California State University system. It provides for ties with a school of higher education, in this case the Samuel Merritt College of Nursing, and will give credit to nurses of that school for teaching in the program. Ties were established as well to a Kaiser Hospital labor union, whose members planned to adopt the program and provide support.

Program Resources

In addition to a full-time lead teacher, the Oakland Health Academy is budgeted for another 1.8 full-time-equivalent teachers. District and school administrators spent an estimated 785 hours on the Health Academy; this includes one-fourth of the time of a full-time academy coordinator, who also serves three other academy programs in the district (which are not part of the state-funded Peninsula Academies replication). Counselors contributed approximately 120 hours; secretaries, 110 hours; and teachers who were not officially part of the academy staff spent 35 hours on the Health Academy program.

The Oakland Health Academy provided 18 pages of documentation describing resources used by the program. More than one hundred specific contributions of time, money, or materials were listed. These came from nine hospitals and 25 other health- or education-related organizations. Estimates of the amount of time or the value of material contributions were given in most instances.

It is apparent that the amount of time contributed to the Health Academy by individuals from these organizations exceeded 1,000 hours during the year. Roughly half was spent giving talks or hosting field trips for academy students. Approximately one-third of the total time was spent on curriculum development or program planning and coordination. The remainder, approximately 150 hours, was used for one-to-one mentoring and job "shadowing."

The school district used approximately $32,000 of its own money to remodel a classroom for use by the academy, with laboratory facilities included. Local hospitals and businesses donated $11,300 in equipment and materials in 1986-87.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 7.2 presents differences in outcomes between academy students and the comparison group, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year.

In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point avergae, and courses failed.

Table 7.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The Health Academy

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	9.3*	27.0*	1.1#*	-3.4#*	I
1986-87 Outcomes	15.6	26.2*	0.6#	-3.7*	-0.29*
Class Entering Fall 1986					
1986-87 Outcomes	8.0*	21.3*	1.0*	-3.1*	I

#=Estimated from separate repressions for academy and comparison groups.
I=Insufficient number of dropouts for analysis
*=Statistically significant

Twelve of the 13 differences in Table 7.2 are statistically significant, and all 12 indicate better performance by academy students. The first academy class in both years, and the second academy class in its first year, had higher attendance rates, failed fewer courses, and earned more course credits than comparison groups. Also, both academy classes achieved significantly better grades in their first year than comparison groups. Finally, the first academy class had a significantly lower probablility of dropping out of school than did students in the 1986-87 comparison group. The one difference in the table that was not statistically significant also indicated better performance by academy students.

Questionnaire Responses

The following sections provide a general overview of the responses received through individual questionnaires. Those providing feedback included program students, academy school personnel, parents of academy students, private-sector participants, and student mentors.

Student Questionnaires

Table 7.3 presents data from student questionnaires. A brief version is administered to all students at the point they enter the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, asking about these topics again. This version also requests information about program activities and asks students to rate the program.

Data are presented by class, so that one can see differences between this year's 10th and 11th grade classes. For the first class (11th graders), responses are presented separately for each year. The numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item.

TABLE 7.3 Student Questionnaire Responses, The Health Academy
(means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	3.9	3.8	na	3.3
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	83%	100%	n/a	100%
b. Other high school teacher	n/a	0%	0%	n/a	0%
c. Parents or other relatives	n/a	67%	58%	n/a	44%
d. Friends	n/a	42%	17%	n/a	33%
e. Academy mentor	n/a	0%	33%	n/a	28%
f. Employer	n/a	0%	0%	n/a	17%
g. School counselor	n/a	33%	33%	n/a	22%
h. School career-center staff	n/a	0%	8%	n/a	17%

		Class 1			Class 2
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Students who had a mentor this year	n/a	18%	82%	n/a	53%
Of these, those who found it useful	n/a	•	•	n/a	100%
Students who had a job arranged through the program					
a. Summer job	n/a	8%	17%	n/a	11%
b. School-year job	n/a	0%	42%	n/a	6%
Of these, those who found it useful	n/a	•	•	n/a	•
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	19.7	9.0	n/a	1.5
b. Spring semester	n/a	15.0	6.7	n/a	4.9
Those who found speakers helpful	n/a	92%	92%	n/a	88%
How many field trips did you attend with the academy?					
a. Fall semester	n/a	2.1	.9	n/a	.4
b. Spring semester	n/a	4.0	6.3	n/a	6.1
Those who found field trips useful	n/a	82%	91%	n/a	94%
Did you get the extra help you needed with your school work during the past year?	n/a	60%	50%	n/a	71%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	90%	60%	n/a	88%
b. Another academy teacher	n/a	80%	50%	n/a	47%
c. A peer tutor	n/a	10%	0%	n/a	6%
d. Another student or friend	n/a	50%	60%	n/a	47%
e. Parent(s)	n/a	30%	30%	n/a	29%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Ratings					
Academy equipment was good or excellent	n/a	75%	92%	n/a	88%
Academy materials were good or excellent	n/a	75%	92%	n/a	100%
Academy schedule better than regular one	n/a	82%	82%	n/a	88%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	82%	n/a	100%
Liked academy better than regular program	n/a	90%	90%	n/a	94%
Career-Related Plans					
Have definite plans for the first two years after graduation	27%	36%	45%	90%	40%
If have plan, it includes					
a. A job	22%	44%	44%	•	•
b. Junior college, college, or university	100%	100%	89%	•	•
c. Vocational or technical training	0%	0%	0%	•	•
d. Military service	0%	0%	11%	•	•
e. Marriage and housekeeping	0%	0%	11%	•	•
Have a long-term career goal	89%	67%	67%	0%	60%
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	82%	82%	82%	•	•
Feel it is very important to gain job skills while in school	82%	91%	73%	79%	93%
Found classwork interesting during past year	55%	91%	82%	100%	75%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Feel good about self after past year	90%	90%	80%	100%	100%
Would not want to be someone different	89%	78%	67%	17%	83%
Feel success is not mainly due to luck	70%	80%	80%	0%	92%

*= Missing data
n/a= Not applicable

School Personnel Responses

At the end of the school year, three members of the school staff completed questionnaires, providing their responses to the program. These were the school principal, academy lead teacher/director, and one other academy teacher. Their responses included the following:

- The academy's facilities, equipment, curriculum, and instructional materials were all rated "good" to "excellent."
- Nonacademy administrators, teachers, and counselors at the high school were all rated as "very supportive" of the program.
- Program planning was rated "good" or "excellent."
- Cooperation and support from the private sector was rated from "somewhat" to "very" effective.
- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 7 "in concept" and 6 "as implemented."
- No program weaknesses were listed by respondents.
- The program's greatest strength was the lead teacher.

Parent Responses

Four parents completed questionnaires at the end of the school year. Their responses included the following:

- All four parents rated the program as "excellent."
- Three of four parents reported that their children were "much more interested in school and learning" since joining the academy, the fourth "a little more."
- Parents had been involved with the program in several ways: attending school events, meeting with teachers, and helping their children with homework.
- In response to how well they had been kept informed of their children's progress in school, three parents responded "very well," the fourth "moderately well."
- The only suggestion for program improvements was to "keep only those in the program who work hard."

Private-Sector Responses

Eight private-sector representatives completed questionnaires at the end of the school year. Their responses included the following:

- Asked whether the academy's curriculum would prepare students for jobs locally, all eight respondents said "yes."
- Asked about communications with the program, all eight rated these as "excellent."
- The effectiveness of the program's steering committee was rated as "good."
- Ratings of students who had worked for the companies represented by these respondents were either "high" or "very high" on all dimensions listed, including dependability, appearance, attitude, language, job preparation, and job performance.
- The program's greatest weakness was school district bureaucracy and weak initial support (which has improved) and the hospitals' inability to provide program funding.

- The program's greatest strengths were the partnership approach between local hospitals and the Oakland schools, and the positive attitude of students in the program
- Suggestions for improvements included "to continue to increase academic expectations of students," "increase the amount of medical terminology," and "add microbiology lab work."

No mentor questionnaires were received.

Summary

Visiting this program is an interesting experience. The program's director and lead teacher offers example after example of student problems and program shortcomings. Yet this is done with a sense of devotion to the tasks and affection for the students, and it becomes clear that attention is being given to every task and student. Given the size of the tasks and nature of the students in the program, such an ambitious approach cannot but lead to frustrations and stress. But caring this much and paying this price has resulted in remarkable success.

There is virtually no dimension addressed by the evaluation in which this success fails to appear. Virtually all features of the academy model have been replicated. The school-within-a-school model is almost fully in place. Support for the program within the school is strong, and the same seems largely true at the district level. Private-sector support is developing well, including speakers, field trip sites, mentors, and jobs. Indeed, both hospital management and a hospital labor union provide support. And the award of a "California Academic Partnership" to develop a partnership with the Samuel Merritt College of Nursing provides strong ties to related higher education.

Student outcome measures examined here reflect this success. On 12 of 13 tests of differences between academy and comparison-group students, academy students perform at a significantly higher level. Responses from student questionnaires are also largely positive, and responses from adult questionnaires (school staff, parents, and private-sector representatives) are consistently positive. In short, this program is working.

chapter 8

The Foothill Computer Academy

Oak Ridge High School
El Dorado Union High School District
Diamond Springs, California

The Foothill Computer Academy struggled with a number of problems in 1986-87. The program's coordinator, who had been at Oak Ridge half-time the first year, moved full-time to another school in the district, weakening the program's leadership. The two teachers who composed the academy's principal staff were new to the program, and one was a first-year teacher, reducing continuity with the first year. The academy school-within-a-school model was followed, but only in part. And the district Board of Education, struggling with budget problems, provided little support.

Private-sector support developed little as well—there was no private-sector advisory body, no curriculum contributions, and the number of speakers declined. While there was a successful mentor program the first year, it was not continued in 1986-87. Summer jobs for juniors were not developed. In spite of these problems, there continued to be some encouraging results from the school-based part of the program.

Setting

El Dorado Union High School District is located just east of Sacramento and covers an area ranging from suburban to rural. It contains several small cities, including El Dorado Hills and Diamond Springs. The economy is largely service-based, with almost no industry and few large employers. Oak Ridge High School is a modern facility located in a picturesque semi-rural location, with housing developments springing up around it. Its student population of approximately 950 is composed of 97 percent white, 2 percent Hispanic, and 1 percent Asian/Pacific Islander. Its parent education index places it at the 90th percentile statewide. Two percent of its students are from families receiving AFDC.

Student Selection

A well defined student selection process was developed during the planning phase of the program. This involves examining records of 9th grade students, looking for students who fit the following criteria:

- 10 or more absences
- Lower than a 2.0 GPA in either the student's core or overall classes
- A deficiency of 5 or more credits (of 60 expected to be earned)
- Standardized test scores no more than two years below grade level (6th grade for the test administered in 8th grade)

Students who match the criteria are informed of the program, and those interested are invited to apply. These students are then rated in terms of the likelihood they will benefit from the program, and the best candidates are selected. However, it appears that this system is inconsistently followed, and students with academic problems are at times placed in the program during the fall semester to fill out the program's enrollments.

Table 8.1 presents a profile of 1986-87 program students by grade level, race/ethnicity, and gender. Comparison group figures are also presented.

Table 8.1 Student Profile, The Foothill Computer Academy

	Academy	Comparison Group
Grade Level		
10	22	45
11	28	27
Race/Ethnicity		
Asian	0%	2%
White	100%	98%
Gender		
Female	45%	49%
Male	55%	51%

Program Management

Academy staff consisted primarily of two teachers, one in business English and computer lab and one in English and math. The second teacher was the only one whose schedule was fully dedicated to the program, and he was a first-year teacher initially unfamiliar with the program's purpose, history, and students. The history and science teachers, who had mixed classes of academy and nonacademy students, were sympathetic to the program's purposes but did not really view themselves as academy staff.

The program's originator and coordinator was assigned full-time at another district high school this year and had very limited involvement in the program. The principal, while supportive of the program and its purposes, had little day-to-day direct involvement except when problems occured. Responses from academy teachers and students suggest that the program has a low profile and a remedial image.

The program is structured around the school-within-a-school model, with students assigned a core of classes and teachers. However, while the model calls for one technical/laboratory class and three academic classes within the academy, this was achieved only in part. Sophomores took computer laboratory, English, and math classes as a group. They were also grouped for history and science, although in these classes nonacademy students were involved as well. In their junior year, academy students took a life skills/computer laboratory and were grouped in mixed English and history classes. An optional tutorial period before the regular school day was offered to both groups, but few students attended.

Enrichment activities were included in the 1986-87 program. At awards luncheons at the end of quarters or semesters, every program student received some kind of award. Students were shown movies approximately every three weeks if they performed well enough to earn this. Students' homework was checked daily and rewarded if well done. In an attempt to encourage students who were performing poorly, students were allowed to repeat assignments for a higher grade if they did poorly. A one-day trip was made to San Francisco, specifically to visit a planetarium and the Exploratorium. A friendly open atmosphere was maintained in academy classes so that students felt free to discuss problems and trust their teachers.

Little private-sector support developed, though it was not totally absent. The program's administrative structure hindered this support. In addition, there are few large businesses near the high school, which is located in a semi-rural area removed from industry. Nevertheless, there were three business speakers. Juniors participated in mock interviews, which were videotaped so they could learn from their performances. A Junior Achievement program was initiated during the fall semester for program students. A few students had part-time school-year or summer jobs related to the program's training, which they arranged on their own. There was no private-sector advisory board, business contribution to the curriculum, mentors, or program-arranged jobs.

Program Resources

Information available on resources used by the Foothill Computer Academy is sketchy. The two academy teachers reportedly spent a total of 1,200 hours on the program during 1986-87. Administrators (including the program director) spent 390 hours on the program; secretaries, 35 hours; and counselors, 20 hours.

Participants from local businesses contributed a total of 55 hours. A reported $10,000 was expended on computers and instructional materials, of which $6,000 was school district money and $4,000 came from the state grant. Material contributions from businesses came to $80.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 8.2 presents differences in outcomes between academy students and the comparison groups, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point average, and courses failed.

Table 8.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The Foothill Computer Academy

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	2.2	7.8*	0.4*	-0.3	I
1986-87 Outcomes	NA	0.8	0.3	0.1	-0.02
Class Entering Fall 1986					
1986-87 Outcomes	NA	2.3	0.7*	-1.0	I

I=Insufficient number of dropouts for analysis
*=Statistically significant

Three differences in Table 8.2 are statistically significant. Both classes of academy students achieved significantly better grades during their first year than comparison students. The first academy class also accumulated significantly more course credits in the first year than the comparison group. Of the eight remaining differences, seven indicate better performance by academy students.

Questionnaire Responses

The following sections provide an overview of responses received through individual questionnaires. Those providing responses include program students, academy personnel, parents of academy students, private-sector participants, and student mentors.

Student Questionnaires

Table 8.3 presents data from student questionnaires. A brief version of this is administered to all students at the point they enter the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, again asking about these topics. This version also requests information about program activities and asks students to rate the program.

Data are presented by class, so that one can see differences between this year's 10th and 11th grades. For the first class (11th graders), responses are presented separately for each year. Numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item.

Table 8.3 Student Questionnaire Responses, The Foohill Computer Academy (means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	3.6	2.7	n/a	3.0
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	45%	33%	n/a	33%
b. Other high school teacher	n/a	0%	0%	n/a	0%
c. Parents or other relatives	n/a	22%	44%	n/a	42%
d. Friends	n/a	44%	44%	n/a	17%
e. Academy mentor	n/a	22%	0%	n/a	0%
f. Employer	n/a	0%	0%	n/a	0%
g. School counselor	n/a	11%	11%	n/a	33%
h. School career-center staff	n/a	11%	22%	n/a	33%
Students who had a mentor this year	n/a	100%	0%	n/a	0%
Of these, those who found it useful	n/a	•	n/a	n/a	n/a
Students who had a job arranged through the program					
a. Summer job	n/a	0%	0%	n/a	0%
b. School-year job	n/a	0%	0%	n/a	0%
Of these, those who found it useful	n/a	n/a	n/a	n/a	n/a

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	5.9	.9	n/a	0
b. Spring semester	n/a	4.3	1.3	n/a	0
Those who found speakers helpful	n/a	50%	63%	n/a	n/a
How many field trips did you attend with the academy?					
a. Fall semester	n/a	•	•	n/a	0
b. Spring semester	n/a	•	•	n/a	.75
Those who found field trips useful	n/a	n/a	n/a	n/a	55%
Did you get the extra help you needed with your school work during the past year?	n/a	•	•	n/a	42%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	•	•	n/a	70%
b. Another academy teacher	n/a	•	•	n/a	10%
c. A peer tutor	n/a	•	•	n/a	0%
d. Another student or friend	n/a	•	•	n/a	30%
e. Parent(s)	n/a	•	•	n/a	50%
Program Ratings					
Academy equipment was good or excellent	n/a	•	•	n/a	17%
Academy materials were good or excellent	n/a	•	•	n/a	33%
Academy schedule better than regular one	n/a	•	•	n/a	46%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	36%	n/a	55%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Liked academy better than regular program	n/a	78%	67%	n/a	73%
Career-Related Plans					
Have definite plans for the first two years after graduation	29%	0%	14%	38%	25%
If have plan, it includes					
a. A job	50%	67%	17%	71%	43%
b. Junior college, college, or university	67%	67%	33%	29%	43%
c. Vocational or technical training	0%	0%	17%	14%	0%
d. Military service	0%	17%	17%	14%	14%
e. Marriage and housekeeping	0%	0%	0%	0%	0%
Have a long-term career goal	75%	50%	38%	71%	43%
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	•	•	•	63%	38%
Feel it is very important to gain job skills while in school	•	•	•	57%	71%
Found classwork interesting during past year	•	•	•	0%	0%
Feel good about self after past year	•	•	•	13%	38%
Would not want to be someone different	•	•	•	63%	63%
Feel success is not mainly due to luck	•	•	•	63%	88%

• = Missing data
n/a= Not applicable

School Personnel Responses

At the end of the school year two academy teachers completed questionnaires. Their responses included the following:

- The academy's facilities and equipment were rated as "excellent"; one teacher rated instructional materials and curriculum as "excellent," while the other failed to rate these but noted concerns about both.
- Nonacademy teachers, counselors, and administrators at the high school were rated as "very supportive."
- Program planning was rated "good" by one teacher and "terrible" by the other.
- Cooperation and support from the private sector was rated "nonexistent" by one teacher and "don't know" by the other.
- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 7 "in concept" and 4 "as implemented."
- The program's greatest weaknesses were lack of ties with business, lack of parent involvement, lack of curriculum standards, lack of student enthusiasm, and negative peer pressure within the program.
- The program's greatest strengths were the low student-teacher ratio and strong staff support.

Parent Responses

Two parents of students in this academy completed questionnaires at the end of the school year. Their responses included the following:

- One parent rated the program as "good" and one as "poor."
- One parent reported that his or her child was "a little more interested in school and learning" since joining the academy; the second said his or her child was "much less interested."
- Both parents said they had attended an open house at school, helped their children with homework, and met with an academy teacher to discuss children's progress.

- In response to how well they had been kept informed of their children's progress in school, both parents responded "poorly."
- Suggestions for improvements included more structure and better teacher-parent communication. Several negative comments were offered, including "the program is nothing like the original presentation" and "we are sorry we enrolled our child in this program."

Private-Sector Responses

Two private-sector representatives associated with the academy completed questionnaires at the end of the school year. Their responses included the following:

- Asked whether the academy's curriculum would prepare students for jobs locally, one respondent said "no" and one "to some degree."
- Asked about communications with the program, one rated these as "good" and one "average."
- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 6 "in concept" and 5.5 "as implemented."
- The program's greatest weakness was lack of business-defined curriculum and training.
- The program's greatest strengths were community support and saving potential dropouts.

There were no mentors here this year, thus no mentor questionnaires were completed.

Summary

It is impossible to review the data and questionnaire responses from the Foothill Computer Academy without noting the problems. The full school-within-a-school model is not followed, the intended student selection procedure is not fully adhered to, there is little private-sector involvement or support, and the district itself seems to have a limited commitment to the program.

Questionnaire responses from students and adults was also not encouraging. There seem to be few positive attitudinal changes among program students, and in some cases, there were regressions. Teachers, parents, and private-sector respondents all provided negative feedback regarding the program. However, some positive comments were made.

In spite of problems, the statistical analysis of student outcome data is positive, with 10 of 11 differences between academy and comparison group students favoring the former, three of these at a statistically significant level. This suggests that the program is having some positive effect on students as measured by school-based indicators.

To be fair, there is a basis for a very successful program here, but a number of problems first need to be addressed. If problems are addressed successfully, the Foothill Computer Academy could be among the most successful academy programs in the state.

chapter 9

The Rio Cazadero Academy

Rio Cazadero High School
Elk Grove Unified School District
Sacramento, California

Rio Cazadero High School offers a unique setting for an academy. It is a small alternative high school of approximately 200 students, designed for at-risk youth in grades 10-12. It has an intimate, friendly atmosphere, with teachers referred to on a first-name basis. Thus, in many ways, the entire high school is organized like an academy. Since the program here serves approximately one-third of all the high school's students, it has a far greater impact than in large comprehensive high schools. In some ways the academy and high school are indistinguishable.

This context offers strengths and weaknesses. The school's atmosphere is ideal for an academy, but its resources are limited. While sophomores had three classes as part of the program, juniors had only one, which met just three days per week. (This has been rectified in 1987-88; juniors are now scheduled three hours together each day.) And the curriculum was divided into two strands for juniors—computers and electronics—testing the reach of the school's staff.

Departure of the school's principal at year's end also caused concern. In so small a setting, the principal had played a central role in the program's establishment and, in particular, in developing private-sector involvement. Yet on balance, after a strong first year, the program seems to be performing well.

Setting

Elk Grove is just south of Sacramento, and the district lies partly within the city limits. Rio Cazadero High School, which draws from the district's two comprehensive high schools, is located in a suburban area just inside Sacramento. It is new, with five small one-story buildings. It is surrounded by middle-income ranch style houses and condominiums. Its student population of approximately 200 consists of 52 percent white, 21 percent black, 20 percent Hispanic, 4 percent Filipino, and 3 percent American Indian.

No data were available from the state on Rio Cazadero's parent education index or percent of students from families receiving AFDC.

Student Profile

From the start, this program used a well defined student selection process based on the Peninsula Academy model. Ninth grade students in the district's two comprehensive high schools are invited to an informational meeting regarding the program. Students who show interest are examined further. Selection criteria include:

- 10 or more credits behind in 9th grade
- Standardized test scores at the 30-35 percent range in reading and math, putting them below grade level
- A pattern of poor attendance

Through contacts with 9th grade teachers, counselors, and administrators, teacher/evaluators also look for other evidence of reasonable ability but poor motivation. In large part, the pattern sought is the same as that for the entire Rio Cazadero High School student body.

Table 9.1 presents a profile of 1986-87 program students by grade level, race/ethnicity, and gender. Figures for the comparison group are also presented.

Table 9.1 Student Profile, The Rio Cazadero Academy

	Academy	Comparison Group
Grade Level		
10	31	59
11	43	45
Race/Ethnicity		
Asian	3%	0%
Black	8%	7%
Hispanic	11%	15%
White	76%	78%
Other	1%	1%
Gender		
Female	47%	50%
Male	53%	50%

Program Management

A strong lead teacher continued to serve as the academy director in 1986-87, while teaching the sophomore computer lab classes. She coordinated efforts of the junior computer/electronics teacher, two history teachers, and a work experience coordinator, while working closely with the principal. She was assisted by a capable aide.

The school itself provides an excellent setting for the program, as well as good support in most respects. Teachers have a common preparation period. While there is no counselor specifically dedicated to the program, small school size and intimate ambience mean that all students are far more closely tracked than in ordinary high schools. Parent contact is a schoolwide concern, particularly when students have problems, although nothing was done in this respect specifically as part of the academy in 1986-87.

The program also has good facilities and equipment. There are three Epson computers, two IBMs, and 30 Commodores. The electronics lab is also well equipped. In fact, when students visited the Peninsula Academies, they felt the original academies were substantially inferior in terms of equipment.

Class structure at Rio Cazadero Academy follows the academy model, but only in part. Sophomores in the program have three classes:

- The computer lab—one period
- World history
- A "contract" class, or home room, in which the teacher also serves as an advisor/counselor/tutor, and which includes individualized instruction

The sophomore "contract" classes were handled by academy teachers, so that students had a core of academy attention their first year. For juniors, this dissipated, with only two academy classes:

- Either a computer or electronics lab—two periods
- A contract home room class

Here the contract class was not necessarily taught by an academy teacher, nor were academy students all grouped together. (Again, for 1987-88, this has been corrected; all academy students are in homerooms with academy teachers.) Academy teachers felt this weakened the program, especially given the fact that not all other teachers at the high school are supportive of the program. Attempts were made to coordinate academic and vocational instruction with the use of computer-assisted learning and English papers written on word processors.

Modest private-sector support developed during the year. While no advisory board existed in a formal sense, private-sector contributions were obtained through the principal's contacts, particularly at his Rotary Club. Approximately 10 mentors were recruited, and juniors were paired with mentors on a two-for-one basis, so that each mentor had two students. There were two or three speakers and field trips to the State Capitol, Monterey Bay Aquarium, and original Peninsula Academies in Redwood City.

Most juniors planned to work over the summer, although many had obtained jobs on their own, with some receiving help from their mentors. Time to develop private support for the program is a need expressed by academy teachers and one that will be more acute with the principal's departure.

Program Resources

Nine teachers spent a total of 3,176 hours on activities related to the Rio Cazadero Academy during 1986-87. Administrators (including the program director) spent an estimated 1,428 hours on the program, a registrar and work experience supervisor devoted 677 hours, an aide spent 1,151 hours, secretaries spent 480 hours, and counselors devoted an estimated 235 hours to academy students during the year.

Participants from local businesses donated 680 hours, of which 180 were in one-to-one mentoring and 500 were in supervising academy students on the job.

Major nonpersonnel resources included use of a computer lab and purchase of computers: 24 Commodore 64s, three Epson QX 16s, and two IBM PCs. These purchases came from district funds rather than the state grant.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 9.2 presents differences in outcomes between academy students and the comparison group, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students performed better than the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point avergae, and courses failed.

Table 9.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The Rio Cazadero Academy

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	12.7#*	25.4*	1.5*	-1.6*	-0.08
1986-87 Outcomes	-0.3	4.5	1.3*	-1.8*	0.12
Class Entering Fall 1986					
1986-87 Outcomes	4.5*	19.7*	1.3*	-2.9*	-0.05

#=Estimated from separate regressions for academy and comparison groups
I=Insufficient number of dropouts for analysis
*=Statistically significant

Ten of the 15 differences shown in Table 9.2 are statistically significant, and all 10 indicate better performance by academy students. The first academy class in both years, and the second academy class in its first year, earned significantly better grades and failed significantly fewer courses than their comparison groups. Both academy classes accumulated significantly more course credits in their first year than did their comparison groups. Both classes also demonstrated significantly better attendance than their comparison groups in their first years. Of the five remaining differences in the table, three indicate better performance by academy students.

Questionnaire Responses

The following sections provide an overview of responses received through individual questionnaires. Those providing responses included program students, academy school personnel, parents of academy students, private-sector participants, and student mentors.

Student Questionnaires

Table 9.3 presents data from academy student questionnaires. A brief version is administered to all students as they enter the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, asking again about these topics . This version also requests information about program activities, and students are asked to rate the program.

Data are presented by class, so that one can see differences between this year's 10th and 11th grade classes. For the first class (11th graders), responses are presented separately for each year. Numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item.

TABLE 9.3 Student Questionnaire Responses, The Rio Cazadero Academy (means [decimals] or percentages of respondents, as indicated)

	Class 1			Class 2	
	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Descriptive Information					
How many academy classes are you currently taking?	n/a	4.7	1.3	n/a	2.8
Who have you asked about career or job information this year?					
a. Academy teacher	n/a	67%	33%	n/a	40%
b. Other high school teacher	n/a	0%	0%	n/a	10%
c. Parents or other relatives	n/a	33%	67%	n/a	55%
d. Friends	n/a	0%	0%	n/a	55%
e. Academy mentor	n/a	0%	33%	n/a	0%
f. Employer	n/a	0%	33%	n/a	0%
g. School counselor	n/a	0%	0%	n/a	10%
h. School career-center staff	n/a	0%	0%	n/a	0%
Students who had a mentor this year	n/a	0%	50%	n/a	0%
Of these, those who found it useful	n/a	n/a	•	n/a	n/a

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Students who had a job arranged through the program					
a. Summer job	n/a	0%	0%	n/a	10%
b. School-year job	n/a	0%	0%	n/a	0%
Of these, those who found it useful	n/a	n/a	n/a	n/a	n/a
How many guests from industry spoke in your classes this year?					
a. Fall semester	n/a	0	0	n/a	1.1
b. Spring semester	n/a	0	0	n/a	.8
Those who found speakers helpful	n/a	n/a	n/a	n/a	42%
How many field trips did you attend with the academy?					
a. Fall semester	n/a	2.0	0	n/a	.5
b. Spring semester	n/a	1.5	0	n/a	.6
Those who found field trips useful	n/a	100%	n/a	n/a	80%
Did you get the extra help you needed with your school work during the past year?	n/a	100%	67%	n/a	65%
Who gave you the help you needed?					
a. Teacher in class with the problem	n/a	100%	100%	n/a	80%
b. Another academy teacher	n/a	33%	33%	n/a	25%
c. A peer tutor	n/a	0%	0%	n/a	5%
d. Another student or friend	n/a	33%	67%	n/a	45%
e. Parent(s)	n/a	33%	0%	n/a	35%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Program Ratings					
Academy equipment was good or excellent	n/a	33%	67%	n/a	70%
Academy materials were good or excellent	n/a	33%	67%	n/a	60%
Academy schedule better than regular one	n/a	33%	33%	n/a	70%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	25%	n/a	69%
Liked academy better than regular program	n/a	67%	67%	n/a	95%
Career-Related Plans					
Have definite plans for the first two years after graduation	50%	50%	50%	11%	11%
If have plan, it includes					
a. A job	•	•	•	33%	67%
b. Junior college, college, or university	•	•	•	50%	50%
c. Vocational or technical training	•	•	•	8%	3%
d. Military service	•	•	•	33%	33%
e. Marriage and housekeeping	•	•	•	0%	17%
Have a long-term career goal	•	•	•	41%	47%
Attitudes Related to Career, School, and Self					
Feel it is very important to make career plans while in school	•	•	•	44%	56%
Feel it is very important to gain job skills while in school	•	•	•	78%	72%
Found classwork interesting during past year	•	•	•	11%	56%

	Class 1			Class 2	
continued	Pre	Spring '86	Spring '87	Pre	Spring '87
Feel good about self after past year	•	•	•	50%	61%
Would not want to be someone different	•	•	•	71%	77%
Feel success is not mainly due to luck	•	•	•	75%	63%

•= Missing data
n/a= Not applicable

School Personnel Responses

At the end of the school year, five members of the school staff completed questionnaires, providing their responses to the program. These included four program teachers (one of whom was the director) and the school secretary (who helped with coordination). Their responses included the following:

- The academy's facilities and equipment were rated on average as "good," curriculum "average" to "good," and instructional materials "average."
- Nonacademy teachers and counselors at the high school were rated as "slightly supportive" of the program and administrators as "somewhat supportive."
- Program planning was rated from "average" to "good."
- Private-sector cooperation and support was rated "somewhat effective."
- On a seven-point scale (1=very weak, 7=very strong), the academy received an average rating of 4.6 "in concept" and 3.6 "as implemented."
- The program's greatest weaknesses were lack of teacher enthusiasm and overall negativism.
- The program's greatest strengths were the computer training and the opportunity for at-risk students to develop self-esteem and careers.

Parent Responses

Twelve parents of academy students completed questionnaires at the end of the school year. Their responses included the following:

- Five parents rated the program as "excellent," four as "good," one as "average," and two as "don't know."
- All 12 reported that their children's attitudes toward school and learning had improved since joining the academy; seven saw "much" improvement and five saw "a little."
- Parents had been involved with the program in several ways, including attending school events and helping their children with homework; 10 of the 12 met with an academy teacher to discuss their children's progress.
- In response to how well they had been kept informed of their children's progress in school, six responded "very well" and six "moderately well."
- Suggestions for improvements included more field trips, homework, and parent contact, and expansion of the program.

Mentor Responses

Three academy mentors completed questionnaires at the end of the school year. Their responses included the following:

- On average, they met four times with their students and talked with them 12 times by telephone.
- Asked if the program was providing students with job skills needed by area companies, two mentors responded "yes" and one "don't know."
- Asked to rate the mentor program, all three responded "highly useful."
- The program's greatest weaknesses were insufficient staff and funds, and discipline problems.
- The program's greatest strengths were the quality of the program staff and the improved attitudes of students as a result of the one-on-one mentor relationship.

No private-sector questionnaires were received.

Summary

There are some weaknesses in the Rio Cazadero Academy. It does not fully conform to the school-within-a-school model, particularly at grade 11. Private-sector involvement needs to be increased, particularly with respect to developing jobs. Teacher technical skills are being tested in the 11th grade, with the split into either computers or electronics. The loss of an involved and supportive principal may make operations more difficult, particularly in addressing problems and carrying the program forward into 12th grade.

On balance, the results here are impressive. Of 13 differences between academy and comparison groups, 12 favored academy students, and nine of these were statistically significant. These results leave little doubt that the program is having a positive effect on participants. Responses from student and adult questionnaires were also largely positive. While challenges remain, this program must be viewed as a success.

chapter 10

The East Side Electronics Academies

Silver Creek and Independence High Schools
East Side Union High School District
San Jose, California

The East Side Union High School District followed a different model in creating new academies, beginning the 1985-86 school year with more than 100 9th grade students at each of two high schools, Independence and Silver Creek. Although the two academies differ in their curriculum and procedures, they are alike in structure, and both depend upon the district office for broad policy direction as well as financial and private-sector support. For this reason, the two programs are dealt with jointly in this single narrative, with separate presentations of data for each school where appropriate.

By starting with more than 100 students at each school—at least double the number at other academy sites—the East Side academies had to mobilize considerable resources from the outset. The district utilized state and private-sector funds for planning prior to receiving state replication funds under the academies legislation. As a result, they had more time for planning than most other sites.

One of the most impressive program accomplishments during the first two years was securing mentors for virtually all 200 of the 1986-87 sophomores and managing these mentorships to the benefit of most students. The two academies were also successful in developing private-sector support, including direct funding, equipment donation, and many hundreds of hours of time from electronics company employees. An elaborate structure of business advisory committees was created and continues to function through central office staff support.

Also impressive is the degree of district commitment to the program. As a result of the programs' size, state funds have accounted for only a small portion of the total East Side Academies budget. Larger size also brought other economies of scale into play early in the programs' development. For example, staff development has been regularly provided since the earliest planning stages.

Setting

The East Side Union High School District has 11 high schools and 23,000 students, making it one of the 10 largest districts in the state. Covering a large part of San Jose and parts of neighboring communities, the district is surrounded by Silicon Valley, which inspired the electronics theme of the academies. Unemployment is generally below state and national levels.

Enrollment in the district and academy schools is diverse. Whites are a minority at both schools, composing 30 percent of the student population and are equal in numbers with Hispanics. Southeast Asians are by far the fastest growing minority group served by the district and academy schools.

Silver Creek's architecture is fairly typical of California suburban schools, with a sprawling one-story campus. Independence High is part of a larger education and government "park" setting, which includes a planetarium, major branch of the public library, impressive athletic facilities, and other amenities that can be justified for a school of its size.

Student Profile

No matched comparison group was identified in 1985-86. For 1986-87, however, a comparison group was established. Table 10.1 profiles academy and comparison-group students in terms of race/ethnicity and gender. At both Silver Creek and Independence, there is a single class of students. The class which began as 9th graders in 1985-86 is moving up through the school. These students are juniors in 1987-88. Through the end of 1986-87, new students were added to the existing grade level group as attrition occurred. Current plans call for little filling for attrition of the current junior class; but a sophomore class is being added to each school this year, thereby keeping the entire program's enrollment for each school at or above 100.

Table 10.1 Student Profile, The East Side Electronics Academies

	Academy	Comparison Group
Enrollment		
Independence	114	114
Silver Creek	124	120
Race/Ethnicity		
Independence		
Asian	10%	36%
Black	12%	14%
Hispanic	38%	34%
White	36%	15%
Other	3%	2%
Silver Creek		
Asian	2%	13%
Black	26%	22%
Hispanic	43%	42%
White	27%	21%
Other	2%	2%
Gender		
Independence		
Male	61%	53%
Female	39%	47%
Silver Creek		
Male	63%	52%
Female	37%	48%

Program Design and Management

The East Side Electonics Academies originated as an initiative by the superintendent, who happened also to be superintendent in the Sequoia district when the Peninsula Academies began six years ago. The program has been a priority for the district administration, which continues to play an active role in academies' management. In fact, the district's administrator of career services also serves as the program manager for both academies. He is supported by a clerical assistant and a full-time business liaison who is funded by industry and reports to an operating committee of business and industry representatives. The liaison works with both academies and businesses in securing mentors, speakers, and summer jobs for juniors.

Each school also supports a part-time site manager. At Silver Creek, the academy English teacher serves this role; at Independence, it is a counselor. Both programs also employ an aide.

Business support for the two schools is centralized through three committees: (1) a board of directors which meets once or twice a year and includes the superintendent and high-level business executives. (2) An operating committee, whose members are equally divided between school personnel and mid-level business executives, which meets monthly and is chaired by a business person. Its major responsibility is to coordinate business involvement, but general policy questions regarding the direction of the academies are also discussed at these meetings. (3) A curriculum advisory committee serving both schools which meets regularly to help ensure that course offerings are consistent with the demands students will face in either future education or jobs in the electronics industry.

Space at both programs is adequate, with an office available for the aide and teachers and most classrooms clustered together. At Independence, one of the largest high schools in the nation, academy students are clustered in one of the three "villas" that divide the school into smaller units. The intimacy thus provided stands in contrast to the bigness of the school as a whole.

At both schools, academy students study English, math, science, and electronics in the morning; they take other nonacademy classes the rest of the day. There have been numerous field trips and guest speakers during the two years. The extraordinary achievement of locating more than 200 mentors has brought the program in close contact with more than a dozen electronics industry firms and has opened many opportunities for students. For example, a number of academy students have been able to participate at no cost in training classes offered by businesses to their employees.

Class size for academy classes is generally 25 or fewer. Since the program began with a class of 9th graders, initial recruitment was through feeder junior high schools. The two schools approached recruitment differently, and there is a widespread belief, confirmed by scores on standardized tests given in the spring, that Silver Creek recruited a much "tougher" group of students, that is, students who bring many more problems to school. This perception in confirmed as well by the higher student turnover at Silver Creek. Larger numbers of academy students have transferred out of Silver Creek than Independence.

As a result of greater attrition, Silver Creek recruited a larger sophomore class for 1987-88 and plans to have as many as 50 sophomores and 70 juniors in the program. Independence expects about 85 juniors and 25 sophomores.

Staff turnover at the two schools has not been great, and the majority of teachers in the program this year will have at least one year's experience in the academy. All key administrators and on-site coordinators have been with the program from the beginning.

Program Resources

In the two East Side academies combined, eight teachers reported spending 10,880 hours instructing academy classes in 1986-87. During a 180-day year, this represents an average of 7.56 hours per day per teacher, which raises questions about the accuracy of the estimate. At both schools combined, teachers also reported spending 288 hours developing curriculum, another 288 hours recruiting and selecting students, and 144 hours on program management and coordination. District and school administrators spent an estimated 808 hours on academy programs, counselors devoted 576 hours, secretaries logged 1,872 hours, and teachers' aides spent 2,160 hours during the course of the year for the programs combined.

Local businesses contributed $14,500 to pay the salary of a liaison between the academies and employers. This person played a large part in recruiting mentors. In addition, volunteers from local businesses reported donating 3,570 hours for one-to-one mentoring with academy students. Business volunteers also contributed 695 hours helping with program management and coordination, 589 hours giving talks, and 576 hours as curriculum advisors.

The two academies together purchased $14,000 of equipment and $7,000 in supplies; spent $4,000 on field trips and $2,000 on student recognition. All of this was charged to the state grant. In addition, businesses reported donating another $30,000 in equipment.

Student Outcome Data

The most objective form of data by which to judge the program's effectiveness is measurable indicators of student performance. These include attendance, credits earned, courses failed, grade point average, and retention. While these are not the only indicators of the program's effect on students, given its emphasis on motivation and career preparedness, they provide the most statistically convincing measures. Later sections in this report address attitude changes and more subjective responses from program participants.

Table 10.2 presents differences in outcomes between academy and comparison-group students, when these are adjusted to account for differences between the two groups in age, gender, race or ethnicity, and academic performance in the preceding year. In this table, *positive* numbers in the attendance, credits, and GPA columns mean that academy students compiled better records than the comparison group. *Negative* numbers in the columns for courses failed and school dropout probability also mean that academy students outperformed the comparison group. Most of the numbers represent "natural" units, i.e., the actual difference in attendance percentage, credits earned, grade point avergae, and courses failed.

Table 10.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The East Side Electronics Academy

A. Independence

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	-1.1	7.4 *	0.1	-1.4*	I
1986-87 Outcomes	3.3*	6.9*	0.3*	-1.4*	I

I=Insufficient number of dropouts for analysis

*=Statistically significant

Six of the eight differences reported in Table 10.2A are statistically significant, and they all indicate better performance by academy students than by the comparison group. In both years, academy students failed significantly fewer courses and compiled a larger number of course credits than comparison students. In the second year, academy students also demonstrated significantly better attendance and grades than the comparison group. Of the two remaining differences shown in the table, one indicates better performance by academy students.

Table 10.2 Adjusted Differences Between Academy and Comparison Groups, by Class, The East Side Electronics Academy

B. Silver Creek

	Attendance	Credits	GPA	Courses Failed	Dropout Probability
Class Entering Fall 1985					
1985-86 Outcomes	-1.5	-4.9	-0.2	1.7*	I
1986-87 Outcomes	-2.3	-2.5	0.1	0.4	I

I=Insufficient number of dropouts for analysis
*=Statistically significant

One difference in Table 10.2B is statistically significant, indicating that academy students were failing more courses than the comparison group in 1985-86. Of the seven remaining differences, only one indicates better performance by academy students. The numbers are somewhat better for the 1986-87 school year than for the 1985-86 school year, indicating the possibility of improvement from the first year to the second.

Questionnaire Responses

The following sections provide an overview of responses received through individual questionnaires. Those providing responses included program students, academy school personnel, parents of academy students, private-sector participants, and student mentors. In the case of responses by students, school personnel, and parents, responses are listed by school. Private-sector and mentor responses are not grouped by school.

Student Questionnaire Responses

Table 10.3 presents data from questionnaires administered to academy students. A brief version of this is administered to all students at the point they enter the program, asking about their career-related plans and attitudes toward careers, school, and themselves. A longer version is administered at the end of each school year, again asking about these topics. This version also requests information about program activities and asks students to rate the program.

Responses are presented separately for each year. Numbers reflect either the percentage of students responding as indicated, or the mean number, depending on the form of the item.

Table 10.3 Student Questionnaire Responses, The East Side Electronics Academies (means [decimals] or percentages of respondents, as indicated)

A. Independence High School

	Pre	Spring '86	Spring '87
Program Descriptive Information			
How many academy classes are you currently taking?	n/a	3.9	3.9
Who have you asked about career or job information this year?			
a. Academy teacher	n/a	48%	26%
b. Other high school teacher	n/a	8%	9%
c. Parents or other relatives	n/a	49%	58%
d. Friends	n/a	35%	49%
e. Academy mentor	n/a	2%	34%
f. Employer	n/a	5%	5%
g. School counselor	n/a	20%	42%
h. School career-center staff	n/a	20%	5%
Students who had a mentor this year	n/a	10%	99%
Of these, those who found it useful	n/a	100%	50%

continued	Pre	Spring '86	Spring '87
Students who had a job arranged through the program			
a. Summer job	n/a	5%	5%
b. School-year job	n/a	0%	2%
Of these, those who found it useful	n/a	100%	100%
How many guests from industry spoke in your classes this year?			
a. Fall semester	n/a	5.7	5.4
b. Spring semester	n/a	4.7	5.0
Those who found speakers helpful	n/a	81%	80%
How many field trips did you attend with the academy?			
a. Fall semester	n/a	3.8	3.9
b. Spring semester	n/a	3.0	3.7
Those who found field trips useful	n/a	77%	83%
Did you get the extra help you needed with your school work during the past year?	n/a	40%	5%
Who gave you the help you needed?			
a. Teacher in class with the problem	n/a	56%	54%
b. Another academy teacher	n/a	19%	11%
c. A peer tutor	n/a	3%	13%
d. Another student or friend	n/a	58%	56%
e. Parent(s)	n/a	56%	52%
Program Ratings			
Academy equipment was good or excellent	n/a	86%	98%

continued	Pre	Spring '86	Spring '87
Academy materials were good or excellent	n/a	91%	89%
Academy schedule better than regular one	n/a	55%	49%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	64%
Liked academy better than regular program	n/a	92%	74%
Career-Related Plans			
Have definite plans for the first two years after graduation	43%	23%	38%
If have plan, it includes			
a. A job	40%	38%	36%
b. Junior college, college, or university	76%	78%	76%
c. Vocational or technical training	20%	7%	15%
d. Military service	9%	11%	16%
e. Marriage and housekeeping	2%	2%	6%
Have a long-term career goal	73%	55%	60%
Attitudes Related to Career, School, and Self			
Feel it is very important to make career plans while in school	69%	79%	87%
Feel it is very important to gain job skills while in school	87%	87%	75%
Found classwork interesting during past year	39%	70%	58%
Feel good about self after past year	81%	79%	81%
Would not want to be someone different	67%	64%	59%

continued	Pre	Spring '86	Spring '87
Feel success is not mainly due to luck	83%	75%	85%

– = Missing data
n/a= Not applicable

B. Silver Creek High School

	Pre	Spring '86	Spring '87
Program Descriptive Information			
How many academy classes are you currently taking?	n/a	4.0	3.85
Who have you asked about career or job information this year?			
a. Academy teacher	n/a	76%	48%
b. Other high school teacher	n/a	4%	13%
c. Parents or other relatives	n/a	59%	59%
d. Friends	n/a	33%	41%
e. Academy mentor	n/a	7%	39%
f. Employer	n/a	2%	9%
g. School counselor	n/a	7%	11%
h. School career-center staff	n/a	30%	13%
Students who had a mentor this year	n/a	11%	91%
Of these, those who found it useful	n/a	60%	60%
Students who had a job arranged through the program			
a. Summer job	n/a	9%	9%
b. School-year job	n/a	14%	2%
Of these, those who found it useful	100%	0%	

continued	Pre	Spring '86	Spring '87
How many guests from industry spoke in your classes this year?			
a. Fall semester	n/a	5.2	5.3
b. Spring semester	n/a	4.9	3.9
Those who found speakers helpful	n/a	77%	83%
How many field trips did you attend with the academy?			
a. Fall semester	n/a	3.1	2.9
b. Spring semester	n/a	3.0	2.6
Those who found field trips useful	n/a	86%	73%
Did you get the extra help you needed with your school work during the past year?	n/a	42%	50%
Who gave you the help you needed?			
a. Teacher in class with the problem	n/a	72%	81%
b. Another academy teacher	n/a	21%	30%
c. A peer tutor	n/a	9%	5%
d. Another student or friend	n/a	14%	35%
e. Parent(s)	n/a	47%	30%

Program Ratings

Academy equipment was good or excellent	n/a	77%	80%
Academy materials were good or excellent	n/a	73%	61%
Academy schedule better than regular one	n/a	58%	42%
Felt strong connection between what were studying in school and postgraduate plans	n/a	n/a	66%
Liked academy better than regular program	n/a	86%	76%

continued	Pre	Spring '86	Spring '87
Career-Related Plans			
Have definite plans for the first two years after graduation	21%	33%	33%
If have plan, it includes			
a. A job	53%	42%	58%
b. Junior college, college, or university	53%	67%	75%
c. Vocational or technical training	22%	11%	8%
d. Military service	8%	0%	18%
e. Marriage and housekeeping	3%	6%	3%
Have a long-term career goal	44%	61%	61%
Attitudes Related to Career, School, and Self			
Feel it is very important to make career plans while in school	64%	67%	69%
Feel it is very important to gain job skills while in school	84%	84%	82%
Found classwork interesting during past year	33%	53%	48%
Feel good about self after past year	77%	82%	77%
Would not want to be someone different	63%	74%	58%
Feel success is not mainly due to luck	70%	73%	70%

- = Missing data
n/a= Not applicable

School Personnel Responses, Independence High School

At the end of the school year, nine members of the school staff completed questionnaires, providing their responses to the program. These included a school administrator, the principal, a school counselor, and six classroom teachers. Their responses included the following:

- The facilities were rated "excellent," and the quality of the books, learning materials, and equipment was rated from "excellent" to "good." The curriculum was rated as "good" by four of the nine; two felt it was "average," two reported "don't know," and one said "poor." The only comment indicated the need for more "electronics education."

- Nonacademy teachers at the high school were rated as only a little more than "slightly supportive," with counselors as "very supportive" (six of the nine), and administrators as "very" to "somewhat supportive" of the program.

- Program planning was rated "good" and "average" equally with the general comment that communication was difficult between the district office and teachers.

- Cooperation and support from the private sector was rated "somewhat effective." There seems to be a lack of clarity for mentors and advisors as to their role in the program.

- On a seven-point scale (1=very weak, 7=very strong), the academy received a very strong 6.8 rating for the program "in concept" and a 5.2 "as implemented."

- The greatest weakness in the program at Independence was the lack of communication and cooperation among staff members and administrators. The only criticism relating to the program specifically was the absence of long-term planning.

- The program's greatest strengths were its flexibility, the bond that was allowed to form between teachers and students, and good counseling.

School Personnel Responses, Silver Creek High School

At the end of the school year, five members of the school staff completed questionnaires, providing responses to the program. These included the principal, a school counselor, and three classroom teachers. Their responses included the following:

- Two of the five rated the facilities "excellent"; three rated them "good." The quality of program equipment was unanimously rated "excellent," and the quality of books and learning materials were rated from "excellent," (3) to "good" (2). Curriculum was rated "excellent" by two of the five; two felt it was "average," and one responded "don't know."

- Nonacademy teachers at the high school were rated "very" or "somewhat supportive," with counselors and administrators rated "very supportive."

- Program planning was rated "excellent" (2) and "good" (3).

- Private-sector cooperation and support was rated "very effective."

- On a seven-point scale (1=very weak, 7=very strong), the academy received a strong 6.5 rating for the program "in concept" and a 5.5 rating "as implemented."

- The program's greatest weaknesses at Silver Creek were a lack of involvement on the part of parents and the amount of busy work involved.

- The program's greatest strengths were the ability to track and help students that need the help to stay in school.

Parent Responses, Independence High School

Five parents of academy students completed and returned questionnaires at the end of the school year. Their responses included the following:

- Ratings of the program's overall quality were scattered. Two rated it "excellent," one "good," one "average," and one "poor"."

- Two parents reported that their children's interest in school markedly improved as a result of the program. Two parents reported that their children's interest had slightly increased, and one felt his child was less interested in school as a result of the program.

- Parents were involved in the program with their children in several ways. The majority attended the open house and assisted with extracurricular activities. They also participated actively in helping their children with homework, and they kept in closer contact with their children's teachers.

- Two of the five parents felt they were "very well" informed regarding their children's progress in school, two said they were "moderately well" informed, and one felt "poorly informed."

- The only suggestion made for improvement of the program was to hire more motivated teachers.

Parent Responses, Silver Creek High School

Two parents of academy students completed and returned questionnaires at the end of the school year. Their responses included the following:

- Ratings of the program's overall quality were "good."

- One parent reported that his child's attitude toward school had greatly improved as a result of the program.

- Parents participated in the program in several ways. The majority of parents attended the open house and assisted with extracurricular activities. They also participated actively in helping their children with homework, and they kept in closer contact with their children's teachers.

- Both parents said they were "moderately well" informed about their children's performance in school.

- The only suggestion made for improvement of the program was to implement a program to counsel children regarding summer school.

Private-Sector Responses

Fifteen private-sector representatives completed questionnaires at the end of the school year. Their responses included the following:

- Asked whether the academy's curriculum would prepare students for jobs in the community, 13 said "yes" and two responded "don't know."

- When asked to rate communications with the program, seven responded "excellent," seven said "good," and one said "average."

- On a seven-point scale (1=very weak, 7=very strong), the academy received a strong 6.5 rating for the program "in concept" and a 6.0 rating "as implemented."

- The program's greatest weaknesses were insufficient coordination with the private sector and a lack of commitment on the part of teachers and students. Some mentioned that students in the program seemed too young and that not enough attention had been paid to student-mentor matching.

- The program's greatest strengths were listed as practical training of students and attention on career goals—letting the students see the real world.

Mentor Responses

Fifty-nine academy mentors completed questionnaires at the end of the school year. Their responses included the following:

- Mentors met with students an average of 5.5 times and talked 8.75 times by telephone.

- Asked whether the curriculum would prepare students for jobs in the community, 32 said "yes," 5 said "no," and 20 said "don't know."

- In rating the mentor program, only 23 felt it was "highly useful," 18 said "somewhat useful," 8 felt it was "okay," 3 said "not useful," and 2 responded "don't know."

- The program's greatest weaknesses were mismatching of mentors students, lack of mentor-student communication, and inconsistent interest in electronics.

- The program's greatest strengths were the introduction of students to the employment experiences, and good instructors.

Summary

The East Side Electronics Academies present something of a dilemma in that both programs went through a similar planning process, followed the same basic complete academy structure, and were allocated similar resources. Yet, as measured by outcome data, the Electronics Academy at Independence is performing more successfully. Independence academy students, in both years, have failed significantly fewer courses and completed a larger number of course credits than comparison students. In 1986-87, academy students also compiled significantly better attendance and grades than comparison students.

At Silver Creek, one measure indicates statistical significance, showing poorer performance by academy students than comparison students in 1985-86, namely courses failed. Academy students also performed lower than comparison students on most measures during both years, though other differences were not statistically significant.

School-level rather than district-level factors must be operating to explain different records at the schools. As indicated earlier, and confirmed by the fact that Silver Creek sophomores had lower CTBS reading scores than academy students in any other site, this school is working with a particularly low achieving, problematic group of students. In its first two years, Silver Creek's academy classes were held in two different parts of the school, which may have worked against the school-within-a-school goal. There were also problems securing lab and instructional materials, and the program experienced staff turnover.

Silver Creek staff conclude that many of their problems in the first two years are now being addressed, and they point with pride to the ease with which they were able to recruit a new sophomore class this year. Student and parent interest in the program appears to be high at both schools.

Both schools began with a different student grouping by selecting 100 9th graders who would then move through school together. However, both schools are now moving toward the model at other academies, i.e., even numbers of sophomores, juniors, and seniors.

The Eastside Union High School District and the individual schools deserve a great deal of credit for the commitment they have demontrated to the academy concept and the extent to which the full model has been implemented. Business support for both schools has been extraordinary. The ability to recruit and match 200 mentors is perhaps the most striking accomplishment, though questionnaires from students, staff, and mentors do indicate a need for more careful matching of mentors and students and greater support of mentor-student relationships.

Part III

Cross-Site Analyses and Conclusions

chapter 11

Cross-Site Analyses and Conclusions

As mentioned in the introduction, this evaluation changed in 1986-87 to correct problems evident in the previous year's effort. Matched comparison groups were identified for all sites. Fuller efforts were made to collect all categories of data. Inevitably, there were omissions, but these were far fewer than in 1985-86. Items related to socioeconomic status were added to the year-end student questionnaire. Standardized achievement tests were administered in the spring to academy students.

In addition, data were collected on resources available to each program from the state, district, and local businesses, and on how these resources were used. Also, a more sophisticated form of analysis was employed in assessing the programs' effects on students, namely, a regression model that adjusted for differences between academy and comparison groups in age, gender, race or ethnicity, and the preceding year's academic performance. Thus, program effects can be reported with considerably more confidence than was the case in 1985-86.

In addition to these changes in the evaluation, the programs are now two years old, and this enhances one's ability to make judgments. As was stressed a year ago, it is hard to reach firm conclusions about any program after just one year of operation, given the inevitable start-up problems common to virtually all new programs. One can be more comfortable making judgments after two years.

However, it is still the case that the academies are not fully functional. As three-year programs, designed for grades 10-12, the academies must complete the 1987-88 school year before they will have completed one full cycle. By June 1988, most of the academies will graduate their first class of students. Even then, it will remain to be seen how program participants perform after graduation. Thus, one must look to next year's report and beyond before drawing final conclusions about the effectiveness of the academies as replicated through AB 3104.

Further changes will take place in the evaluation during the 1987-88 school year. The two Stockton replications were terminated by decision of the district administrators, based on noncompliance with the model. But two new sites have been added—Inglewood and Santa Barbara—and will be included. Also, the two original Peninsula Academies in the Sequoia District in Redwood City, due to their own evaluation grant expiring, have been added to the evaluation for 1987-88. Thus, there will be 12 academies evaluated in 1987-88—two new ones in their first year, eight that are three years old, and the two original academies which are now in their sixth year.

Program Implementation

The central question in the process component of this evaluation is the degree to which each of the replications is successful in implementing the academy model. As reported in 1985-86, there were two central variations from the academy model the first year, and several additional minor ones. The major ones included:

1. The Eastside Union High School District, with its two electronics academies, enrolled a group of approximately 100 students in each program at the 9th grade level, with the intent of adding no new students and keeping this group intact through four years. The main difficulty with this approach is that it requires obtaining the necessary program resources for each year of the program (equipment, teachers, mentors, jobs) all at once. This year the district decided to move in 1987-88 toward the standard approach. Thus, the original class, which is in the 11th grade in 1987-88, will be joined with a new, smaller class of 10th graders. Once the original class graduates in June 1989, enrollment will be on the same footing as other academies, that is, grades 10-12 with a new class of sophomores each year.

2. The Stockton Unified School District, also with two academies, failed to provide the three academic classes combined with the technical class that compose the school-within-a-school structure. When confronted by the State Department of Education on this point in the fall of 1986, after some initial partial efforts to comply with the model, the district decided instead to abandon the program as of June 1987.

Thus, the two largest implementation discrepancies from the academy model in 1985-86 were resolved in 1986-87. A variety of smaller omissions in the academy model remains. But given the positive relationship demonstrated in 1985-86 between the degree of implementation and the programs' successes in terms of student outcomes, the current 1986-87 evaluation included a means of assessing each site's progress toward implementation. This took the form of a checklist of academy components which was completed by evaluators after visits to each site in the spring. The full checklist is presented below.

Table 11.1 Peninsula Academy Replications Checklist of Components

Site:	YES	NO	PARTIAL
Student Selection			
Defined criteria for program entry	___	___	___
Aimed at high-risk students	___	___	___
Recruitment and application process	___	___	___
Appropriate numbers entering yearly	___	___	___
Program Structure			
School-within-a-school structure	___	___	___
1 technical class, grades10-12	___	___	___
3 academic classes, grades 10-11 (English, math, science/social science)	___	___	___
Block scheduling	___	___	___
Coordination between academic and vocational curriculum	___	___	___
Private-Sector Support			
Business-education advisory body	___	___	___
Input to technical curriculum	___	___	___
School speakers	___	___	___
Field trips to businesses	___	___	___
Mentor program—grades 11 and 12	___	___	___
Availability of junior work experience, summer	___	___	___
District and School Support			
Dedicated academy teachers	___	___	___
Extra teacher preparation period	___	___	___
Counselor support	___	___	___
Administrator support	___	___	___
Adequate facilities, equipment	___	___	___
Adequate curricular materials	___	___	___
Miscellaneous			
Staff orientation, development	___	___	___
Parental contact	___	___	___
Adequate career planning	___	___	___
Program "home base" room	___	___	___

Substantial variation from site to site in the degree to which the programs were implementing the academy model was clear from this exercise. Variations ranged from sites struggling with one or two elements, to those in which many of the model's components were absent. (The State Department of Education grant administrators became concerned with this situation, and late in April they sent a letter to each site asking the superintendents to certify that all components of the model were to be implemented if the district wished to receive its 1987-88 grant. All sites returned a signed letter.)

The relationship between the degree to which the model was implemented and the degree of program success is particularly interesting. While the degree of success is reasonably clear, given the outcome analyses that were conducted, it is more difficult to measure the exact degree of implementation. For example, a site may establish a mentor program but provide mentors for only half the participants. Or it may offer one or two academic classes to complement the technical class, but not the full set of three. To provide some numerical measure of implementation, evaluators conducting site visits rated each component of each program, using the following system:

- A full point for full implementation
- A half point for partial implementation
- No points for absence of any implementation

Since there are 25 components on the checklist, the top score possible is 25. Scores for each site are presented in the following table. They are arranged into the five categories used on the checklist.

Table 11.2 Implementation Score, by Site*

High School	St. Sel.	Pr. Str.	PS Sup	D/S Sup	Misc	Total
Max. Score:	4	5	6	6	4	25
Bakersfield	4	4.5	3	4.5	2.5	18.5
Edison	1.5	1.5	1	2.5	1	7.5
Franklin	4	3.5	4	3	3.5	18
Hiram Johnson	4	5	4	4	4	21
Mountain View	3	4.5	5	3	2.5	18
Oakland Tech	4	5	5	4.5	3.5	22
Oak Ridge	2	2.5	2	2.5	1.5	10.5
Rio Cazadero	4	4	3.5	4.5	3	19
Independence	3	5	6	6	3	23
Silver Creek	3.5	5	6	5	3	22.5

* Headings:

St. Sel.=Student Selection
Pr. Str.=Program Structure
PS Sup.=Private Sector Support
D/S Sup.=District and School Support
Misc.=Miscellaneous

Additional information regarding the level of implementation achieved in each site derives from data related to the programs' expended resources. Information was obtained from each site on this topic, and while it is based on estimates and should not be regarded as precise or comparable, it does approximate the level of effort expended by each site for program purposes.

These resource estimates are for the full 1986-87 school year. They primarily reflect the amount of time invested by various categories of personnel, for example, teachers and aides, administrators and secretaries, counselors, and business personnel. There is also an estimate of dollar expenditures for nonpersonnel investments in the academy, including facilities, equipment, supplies, and the like. Table 11.3 provides a summary of these estimates by site.

Table 11.3 Estimated Resource Allocations,* 1986-87 School-Year

	Hours					
Sites	Teachers/ Aides	Admin./ Secretaries	Counselors	Business	Total	Other ($)
Bakersfield	2,895	630	30	108	3,663	5,030
Franklin	1,110	375	200	1,100	2,785	96,000
Hiram Johnson	5,400	720	186	96	6,502	71,500
Mountain View	1,862	927	130	877	3,796	13,625
Oakland Tech	4,070	895	120	1,000+	6,085	43,300
Oak Ridge	1,200	425	20	55	1,700	10,080
Rio Cazadero	4,327	2,585	235	680	7,827	25,000
Eastside San Jose (2 Academies)	13,760	2,680	576	5,430	22,446	57,000

* Edison High School provided no information on this topic.

The above numbers are estimates provided by staff at the sites. The level of detail provided by sites varied substantially. For example, one site entered a few numbers on the form with no explanation; another provided a detailed, typed summary and 18 pages of explanation and supporting information. Yet a picture emerges of substantial variation, and the sites that provided the most detail were the ones spending most on the program.

1986-87 Student Outcomes

This section summarizes across sites the information gathered during 1986-87 in the following categories:

- Academy enrollments by site, gender, and race/ethnicity
- Academy students' socioeconomic status
- Standardized achievement test results
- Adjusted differences between academy and comparison-group students on attendance, credits earned, courses failed, grade point average, and retention, showing the results of the statistical testing
- Student questionnaire responses, as they address career planning, attutudes toward school and self, and program ratings

Each of these sections presents and discusses this data.

Enrollments

Table 11.4 presents enrollment figures across the 10 sites and two years of academy student classes (grades 10 and 11). The first column provides the actual number of students enrolled, and subsequent columns present percentages for gender and race/ethnicity. The last row provides a cross-site total for these variables. The headings for race/ethnicity are as follows:

A—Asian/Pacific Islander
B—Black
H—Hispanic
W—White
O—Other

Table 11.4 Academy Enrollments, 1986-87

		Gender (%)		Race/Ethnicity (%)				
Site	N	M	F	A	B	H	W	O
Bakersfield	87	46	54	0	16	50	32	2
Edison	84	51	49	6	34	44	7	9
Franklin	63	45	55	2	19	34	38	8
Hiram Johnson	123	49	51	11	30	21	37	1
Mountain View	48	75	25	2	15	9	72	2
Oakland Tech	81	33	67	12	73	0	8	7
Oak Ridge	50	55	45	0	0	0	100	0
Rio Cazadero	74	53	47	3	8	11	76	1
Independence	114	61	39	10	12	38	36	4
Silver Creek	124	63	37	2	26	43	27	2
Total	848	53	47	6	25	28	39	2

Table 11.4 presents numbers based on all enrollments during the programs' two operational years and does not subtract those students who had dropped out of school by June 1987. There were 89 academy dropouts in the two classes (10.5%), bringing the total enrollment down to 759 (versus 158 comparison-group dropouts among 965 students, or

16.3 percent). There were also 114 academy students (13.4%) who transferred to another high school, reducing the academy enrollment further to 645 (versus 225 comparison group students who transferred to another high school, or 23.3 percent of that group).

Dropout data are particularly hard to track. The only way schools can follow most students who leave is when another school requests their transcripts. Dropout figures here include students who have stopped attending and for whom no such transcript has been requested.

Socioeconomic Status

Several items were added to the year-end student questionnaire asking academy students to describe their relationships to the adults they lived with and the educational and employment status of those adults. This questionnaire was not administered to comparison-group students. The response rate to this part of the questionnaire was quite low (students were not forced to complete this if they felt uncomfortable doing so). Across the two classes, about 350 students completed these items. Although these data are incomplete and do not present a statistically precise picture, they do give some sense for the socioeconomic status of academy students statewide, and they are presented for this reason.

Table 11.5 Socioeconomic Status of Student Questionnaire Respondents

	Class 1	Class 2
With What Adults Do You Live?		
Mother only	17%	21%
Father only	2%	4%
Mother and father or one parent and another adult	64%	59%
One or more other adults, not mother or father	4%	2%
Mother and father and other adults	12%	10%
Highest Grade Level Completed by Adult(s) in Household		
8th grade or less	3%	3%
Some high school	10%	7%
High school graduate only	26%	20%
Some college	23%	37%
College graduate or more	37%	30%
Number of Adults with Paid Job Outside the House (means)		
In household with one adult	.87	.79
In household with two adults	1.61	1.59
Number of Adults with Undesired Unemployment in Past Year		
In households with one adult	.26	.24
In households with two adults	.29	.29

Standardized Test Results

In April and May of 1987, the evaluators administered the Comprehensive Test of Basic Skills to academy students. The Basic Skills Tests in Reading and Math, Form U, Level J was used. Tests were not administered to comparison-group students. The two Stockton academies were omitted from the testing. It was already known that Stockton's programs were being terminated in June, and the main reason for the testing was to track changes over the course of high school in academy students' standardized achievement test scores.

Table 11.6 presents results of this testing. In addition to the mean score and N for each class at each school, a demographic norm is listed which shows the mean score expected for students from a school with the socioeconomic composition of that school. Scores are presented in grade equivalent (GE) form. Students were tested and scored by class (cohort 1 in grade 11, cohort 2 in grade 10).

Table 11.6 CTBS Mean Reading and Math Scores for Academy Students, Spring 1987

	Reading		Math	
Sites	GE (N)	GE Norm	GE (N)	GE Norm
Bakersfield				
Class 1	9.1 (15)	10.0	9.2 (15)	10.2
Class 2	9.4 (28)	9.5	10.0 (28)	9.7
Hiram Johnson				
Class 1	9.4 (36)	9.6	11.1 (29)	9.5
Class 2	9.6 (35)	9.2	9.4 (34)	9.2
Mountain View				
Class 1	9.6 (11)	12.9	11.0 (12)	12.9
Class 2	8.8 (14)	12.6	10.1 (14)	12.7
Oakland Tech				
Class 1	12.3 (25)	9.6	12.9 (26)	9.4
Class 2	10.8 (21)	9.1	11.1 (19)	9.0
Oak Ridge				
Class 1	11.9 (13)	12.9	9.9 (11)	12.9
Class 2	9.2 (14)	12.6	8.5 (13)	11.8
Rio Cazadero				
Class 1	Too few to analyze			
Class 2	12.7 (18)	10.5	9.3 (18)	10.2

	Reading		Math	
continued	GE (N)	GE Norm	GE (N)	GE Norm
Independence*	9.8 (87)	9.7	12.7 (86)	10.5
Silver Creek*	8.2 (68)	9.1	9.7 (67)	9.4

* Independence and Silver Creek had just one class ; grade 10 in 1986-87.

Table 11.6 demonstrates that, first, the "Grade Equivalent Norm" scores vary substantially from site to site, reflecting wide variation in the nature of the sites. Some, such as Hiram Johnson, Oakland Tech, and Silver Creek, are typical inner-city schools with well below average demographic norms. Others, such as Mountain View and Oak Ridge, are just the opposite—prosperous, suburban schools with well above average demographic norms.

Table 11.6 also demonstrates substantial variation in academy student scores and, in particular, student scores compared to their school's expected or norm score. It should be stressed that no conclusions about the programs' influence on students can be clearly drawn from these data. In part, the scores reflect selection procedures used in each academy. For example, for high SES schools, the relatively low CTBS scores shown here almost surely reflect to some degree the selection of lower-than-average students.

In lower SES schools, where more average students are selected to participate in the programs, it is possible that higher than expected mean scores reflect some evidence of program influence, although this is speculative. It is hoped that in a year or two such testing will show patterns reflecting clear program effect. But for now, these data must be viewed as descriptive.

Summary of Statistically Significant Adjusted Differences in Student Outcomes

Table 11.7 demonstrates which differences between academy and comparison students were statistically significant in the first two years. The statistical procedure for testing significance is explained in Appendix B. The basic approach is to adjust the raw differences in outcomes reported above in order to correct for pre-existing differences between academy and comparison students in prior school performance, gender, race or ethnicity, and date of birth. These pre-existing differences between academy and comparison groups were not entirely eliminated by the procedure for selecting comparison groups, even though that procedure did attempt to keep such differences as small as possible. By adjusting for any remaining differences between academy and comparison students, it is possible to test more precisely whether differences in outcomes are due to the academy experience itself, rather than to pre-existing differences between two groups of students.

In Table 11.7, a "plus" sign indicates that academy students performed significantly better than the comparison group, when pre-existing differences are taken into account. A "minus" sign means that academy students performed significantly worse. The actual numbers were shown in the chapters on individual sites.

One way to read the table is to compare rows. This reveals which sites had more success for academy students relative to the comparison groups. Oakland Tech is clearly affecting students positively at this time. In its first two operating years, the Health Academy at Oakland Tech produced statistically significant differences in favor of academy students on 12 of 15 outcomes. Rio Cazadero and Independence were next in frequency of positive outcomes for academy students. Students in the Rio Cazadero academy demonstrated significantly better outcomes than the comparison group in 10 of 15 instances. At the Independence Electronics Academy, where there was only one cohort of students and therefore only 10 possible comparisons, academy students demonstrated positive outcomes in six instances. These three programs are therefore demonstrating unambiguous success so far. Academies at other sites produced a few scattered positive results that were statistically significant, as well as many that were not statistically significant, as reported in the chapters on separate sites. One site yielded results that were predominantly negative, although only one such difference was statistically significant.

Another way to read Table 11.7 is to compare columns. This reveals that the academy programs as a group had relatively more success in helping students compile good academic records than in keeping students at school. The superior academic records of academy students are reflected in larger numbers of course credits, better grades, and fewer courses failed. Success in keeping students at school is measured by better attendance and a lower probability of dropping out. It is possible that, as these students approach graduation, the superior academic records of academy students will translate into a higher probability of graduating on time, which is one of the main objectives of the academy program. Data to be collected during the next two years will reveal whether this in fact happens. At the present time, the main accomplishment of the academy programs has been to help these sophomores and juniors (freshman and sophomores at Independence) achieve better academic records.

A third comparison can be made in this table between classes and years. The class that entered grade 10 (grade 9 at Independence and Silver Creek) in the fall of 1985 yielded outcome data for 1985-86 and 1986-87. The class that entered grade 10 in the fall of 1986 has produced only one year of outcome data—for 1986-87. Of the 45 possible comparisons for the first class in the first year, 18 were positive and statistically significant, and one was negative and significant. For the first class in its second year, 10 of 45 comparisons were significantly positive, and one was significantly negative. For the second class in its first year, 13 of 35 possible comparisons were significantly positive, and none was significantly negative. (There are fewer possible comparisons here because Independence and Silver Creek did not admit a second cohort in 1986-87.) These different proportions suggest that the academy programs may have somewhat more pronounced success with students during their first year in the program than in subsequent years. Data to be collected in the next two years will demonstrate whether or not this remains true.

Table 11.7 Summary of Statistically Significant (p≤.05) Adjusted Differences in Outcomes Between Academy and Comparison Groups, and Program Implementation Ratings

	Attendance	Credits	GPA	Courses Failed	School Dropout Probability†	Program Implementation Rating
Class Entering Fall 1985						
1985-86 Outcomes						
Bakersfield	+					18.5
Franklin		+	+			18
Hiram Johnson		+		+		21
Independance		+		+		23
Mountain View			+			18
Oak Ridge		+	+			10.5
Oakland Tech	+	+	+	+		22
Rio Cazadero	+	+	+	+		19
Silver Creek				-		22.5
Class Entering Fall 1985						
1986-87 Outcomes						
Bakersfield						18.5
Franklin					-	18
Hiram Johnson						21
Independance	+	+	+	+		23
Mountain View						18
Oak Ridge						10.5
Oakland Tech	+	+		+	+	22
Rio Cazadero			+	+		19
Silver Creek						22.5

continued	Attendance	Credits	GPA	Courses Failed	School Dropout Probability†	Program Implementation Rating
Class Entering Fall 1986						
1986-87 Outcomes*						
Bakersfield						18.5
Franklin		+		+		18
Hiram Johnson	+			+		21
Mountain View						18
Oak Ridge				+		10.5
Oakland Tech	+	+		+	+	22
Rio Cazadero	+	+		+	+	19

Key: + means academy students did better, - means academy students did worse.

† These are interim results only. The full effect of the program on dropping out cannot be known until students have finished 12th grade. At that time the accumulated differences in credits between the academy and comparison students will have its full effect on graduating on time.

* Independence and Silver Creek added no new class this year.

Student Questionnaire Feedback

Table 11.8 presents cross-site totals from the year-end student questionnaire. These are presented by class. Class 1 was in grade 11 this year, class 2 in grade 10. For class 1, results from both the spring of 1986 and 1987 are presented for those items related to program descriptions or ratings (that are included on just the year-end questionnaire). For those items related to career planning and attitudes toward career, school, and self (which are included on the pre-program-participation questionnaire as well), results have been combined from the two years to reflect the total net change, "pre to post," on these variables.

Table 11.8 Student Questionnaire Responses
(means [decimals] or percentages of respondents, as indicated)

	Class 1		Class 2
	Spring '86	Spring '87	Spring '87
Program Descriptive Information			
How many academy classes are you currently taking?	3.9	3.6	2.8
Who have you asked about career or job information this year?			
a. Academy teacher	63%	48%	49%
b. Other high school teacher	5%	7%	9%
c. Parents or other relatives	48%	51%	44%
d. Friends	32%	39%	35%
e. Academy mentor	3%	32%	5%
f. Employer	4%	6%	9%
g. School counselor	16%	27%	25%
h. School career-center staff	20%	13%	28%
Students who had a mentor this year	13%	77%	•
Of these, those who found it useful	77%	54%	•
Students who had a job arranged through the program			
a. Summer job	5%	6%	8%
b. School-year job	4%	5%	2%
Of these, those who found it useful	75%	50%	68%
How many guests from industry spoke in your classes this year?			
a. Fall semester	5.3	4.6	1.8
b. Spring semester	5.2	3.9	1.7
Those who found speakers helpful	80%	79%	67%
How many field trips did you attend with the academy?			
a. Fall semester	3.1	2.8	.2
b. Spring semester	3.0	2.9	.8
Those who found field trips useful	78%	81%	78%
Did you get the extra help you needed with your school work during the past year?	49%	54%	56%
Who gave you the help you needed?			
a. Teacher in class with the problem	66%	62%	66%
b. Another academy teacher	28%	26%	18%
c. A peer tutor	5%	7%	5%
d. Another student or friend	37%	48%	35%
e. Parent(s)	45%	39%	31%

	Class 1		Class 2
continued	Spring '86	Spring '87	Spring '87
Program Ratings			
Academy equipment was good or excellent	81%	86%	56%
Academy materials were good or excellent	79%	75%	54%
Academy schedule better than regular one	59%	46%	52%
Felt strong connection between what were studying in school and postgraduate plans	n/a	67%	71%
Liked academy better than regular program	90%	86%	72%

	Total Pre	Total Post
Career-Related Plans		
Have definite plans for the first two years after graduation	29%	31%
If have plan, it includes		
a. A job	45%	44%
b. Junior college, college, or university	61%	70%
c. Vocational or technical training	15%	15%
d. Military service	11%	15%
e. Marriage and housekeeping	4%	4%
Have a long-term career goal	56%	58%
Attitudes Related to Career, School, and Self		
Feel it is very important to make career plans while in school	64%	73%
Feel it is very important to gain job skills while in school	79%	80%
Found classwork interesting during past year	33%	61%
Feel good about self after past year	72%	79%
Would not want to be someone different	63%	69%
Feel success is not mainly due to luck	70%	78%

•= Missing data

What does this table portray? With respect to *career-related plans*, there is only a two percent increase in the number of students who have either immediate postgraduate plans or a long-term career goal. There is a nine percent increase in the number of students planning on some form of college. And there is a nine percent increase in the number of students who believe it is important to make career plans while in school. The programs seem to be having only a slight effect on students on this dimension.

Another question addressed by this information is *students' attitudes toward school and themselves*. There is an increase of 28 percent among academy students who "found classwork interesting during the past year." And there are small increases (6% and 7%) among those who "would not want to be someone different" and who "feel good about themselves" after the past year. There is a similar increase (8%) among those who feel "success is not due mainly to luck," an attempt to gauge inner-directedness. This suggests a substantial improvement in attitudes toward school and a modest one in attitudes toward self.

Finally, student questionnaire responses demonstrate students' *ratings of the programs* on several dimensions. The highest rating is in response to whether students like the academy better than the regular school program— about 8 in 10 do. About 7 in 10 academy students also see a strong connection between what they are studying and their postgraduate plans. Ratings of the academy equipment and materials are also high among first-class students (about 8 in 10 rate it "good" or "excellent"), somewhat lower among the second class (about half give these ratings). Only about half of enrollees statewide prefer the academy schedule to the regular one.

Conclusions

During the past two-and-a-half years, 10 high schools in eight California school districts have attempted to replicate the original Peninsula Academies program. Supported by funding from the State Department of Education, the schools began planning activities in the 1984-85 school year. During the past two school years (1985-86 and 1986-87), each academy received $50,000 per year from the state to support program operations.

Six of the 10 schools chose computers or electronics as their career theme, two focused on health, and the remaining two selected finance and food service themes. In all cases, career themes seem well connected to local labor markets. To the extent that the programs are geared toward preparing youth for careers in electronics, computers, health, and food services, there should be entry-level jobs available for qualified students who graduate from these academies.

Implementation

Implementation across academies was uneven. Implementation problems were great enough in Stockton to result in the termination of those academies as of June 1987, even though Franklin High School's Food Service Academy had achieved clear signs of success.

The most common implementation problems appeared to be a lack of administrative support from the host school district and/or high school. This lack of administrative support resulted in a number problems, including underbudgeting of staff and instructional materials, inappropriate assignment or discontinuity in staffing, poor scheduling of students and staff, and poor acceptance of the program by the larger school. Lack of administrative support resulted in the demise of the Stockton academies, and it is an on-going problem at some of the academies that have not proven to be fully successful.

Private-Sector Support

The academies varied considerably in the extent to which they successfully enlisted the support of local private companies. This was due in part to differences in the settings. It is in some ways unfair to compare, for example, a Silicon Valley district like East Side with a semi-rural district like El Dorado. The former has a substantial base of large, successful companies operating in fields related to the academies' training; the latter has few large employers of any kind.

Still, there are ways in which host districts can encourage effective private-sector participation. District or school staff need to be given the time to develop the necessary coordination with private companies, which often have an interest in but lack knowledge about how best to work effectively with high school students and teachers. For the most part, academies with strong administrative support were more successful in providing the coordination necessary for field trips, speakers, mentor programs, and student jobs. However, this is a task requiring extensive organizational work, and in no site did program staff feel as though they had fully tapped the private-sector resources potentially available.

Student Outcomes

Of the 108 tests of differences between academy and comparison-group students on outcome variables (attendance, credits earned, courses failed, grade point averages, and retention), 41 were statistically significant in favor of academy students and two in favor of comparison groups. Of those not statistically significant, 46 favored academy students and 19 favored comparison groups.

These results, however, were not evenly spread over the 10 replications. In fact, the academies can be viewed in three groups:

- In three sites, 33 of 36 differences favor academy students, and 28 of these are at a statistically significant level.
- In five other sites, 52 of 64 differences favor academy students, but only 13 of these are at a statistically significant level.

- In one site, seven of eight differences favor the comparison group, one at a statistically significant level; and one program was so poorly implemented as to make it impossible even to conduct such tests.

How one interprets these findings depends to some degree on one's viewpoint. From a strictly statistical standpoint, there are only three clear successes. However, the programs are not yet fully implemented and have not graduated their first class of students. Given their intermediate stage of development, one might acknowledge signs of promise in five additional sites. Ultimately, only full implementation and tracking of program graduates will enable final conclusions to be drawn.

Attitude improvements were registered at most of sites. Program students reported a strong connection between their schoolwork and employment, they liked the academy better than their regular school program, they found their academy classwork more interesting than the regular school program, they rated highly the academies' equipment and materials, and they generally felt better about themselves.

Relationship Between Implementation and Student Outcomes

For the most part, implementation observations made by evaluators correlate with outcome data conclusions about the academies' success or lack thereof. The three academies with the "best numbers" also rated highly in the extent to which the academy model was fully implemented. This meant, among other things, that these academies had strong administrative and private-sector support. While full development of the model does not guarantee success, it appears to be a prerequisite to achieving significant differences in student outcomes.

The most important finding from this second-year evaluation is that the academy program model is capable of producing substantial positive effects on students who participate in it, but that developing an effective program is apparently a difficult thing to do. This has been clearly accomplished in three sites. These findings are generally consistent with those reported in the 1985-86 evaluation of these programs, but they indicate a somewhat higher level of effectiveness, and the data underlying the findings are stronger. In particular, more and better data were secured on comparison students, and a more sophisticated analysis of these data greatly strengthen the evaluation's conclusions.

Recommendations

There are two central findings from this evaluation. First, the academy program model is capable of producing substantial positive effects on students who participate in it.

Second, the model is complex to implement, has been implemented unevenly to date, and the quality of its implementation appears to be closely related to its success with students. These findings lead to several recommendations.

Legislation is already enacted and in place (SB 605, Appendix B) to expand the number of academy replications by 15 additional sites per year for four years, as well as to continue funding for existing programs. If the quality of implementation across sites can be improved and the new programs can be replicated with greater consistency, better following the full academy model, the proportion of sites with clearly positive outcomes for participating students can be raised. But a number of actions are needed to provide the best chance for such consistent implementation.

1. *The requirements of SB 605 should be followed carefully in establishing new academies.* Grants should be provided only to districts with appropriate target populations that are willing to meet the matching requirements of the legislation. Further, the programs should be implemented in full accordance with key features of the model: appropriate student selection, school-within-a-school structure, necessary private-sector support, and necessary school and district support.

2. *Sufficient training should be provided to all new sites.* Such training should target district and school administrators as well as teachers. It should provide a full understanding of the academy model as well as address necessary private-sector involvement and how to pursue it. This training should occur during the planning period and be followed up during the first year of implementation. Such training needs to occur both at individual academy sites as well as through workshops with several sites participating. There are a number of people capable of providing this training, especially those who have been involved with exisiting, successful academies.

3. Senate Bill 605 is designed around a performance-based system of funding. This will reward well performing programs and lead to the termination of those that are not. For this system to work as intended, *the performance of new academies should be tracked carefully in accordance with provisions of the legislation.* A clearly articulated mechanism for such tracking should be established by the State Department of Education as part of its administration of the grants.

4. Related to the last recommendation, *the State Department of Education should monitor program implementation in terms of consistency with the model.* The department should take action to correct inconsistencies where found and should terminate the grants for sites which do not take corrective action. It has done this more consistently since the first evaluation report was issued a year ago (recommending this action), with generally positive effects.

5. *Evaluation should be continued through at least June 1990, allowing for assessment of the programs' postgraduate effects on the first two classes of graduates.* The academies offer a rare opportunity to replicate widely a program designed around a clear model which appears to lead to better academic and career outcomes for at-risk students. It also offers a well structured, productive way of bringing together education and business entities toward this end. The academies model offers the still rarer opportunity to make data-based judgments of success based on student outcomes. If SB 605 is to be implemented, and many new academies created, further knowledge about their effectiveness and reasons for it is needed.

Appendix A
Student Outcomes Data, by Site

Tables in this appendix demonstrate results from an analysis of five "outcome" categories: retention, attendance, credits earned, courses failed, and grade point average. Each table shows the mean and N for each class of students. Figures are presented for each program year (i.e., for class 1, 1985-86 and 1986-87, and for class 2, 1986-87) as well as each class's pre-program year. Comparable figures are provided for the matched comparison groups. Thus, each table provides a two-way comparison: between academy students' pre-program and in-program performance, and between program and comparison-group students.

A third row in each table indicates differences between the two groups at each point in time, as well as a "Net Change" figure across time. Where academy students outperform comparison groups, difference figures are positive; where the opposite is true, they are negative. The one exception to this is "courses failed," where a negative difference reflects better academy performance.

Dropout data are particularly hard to track. The only way schools can follow most students who leave is when another school requests their transcripts. Dropout figures here include students who have stopped attending and for whom no such transcript has been requested.

Tables are presented by site in the same order in which case studies appeared in Part II.

Table A.1 The Health Careers Academy, Bakersfield

A. School Dropouts

	Program	Comparison Group
10th Grade Class	5.1% (2)	3.2% (2)
11th Grade Class		
Year One	2.1% (1)	6.3% (3)
Year Two	3.2% (7)	9.4% (5)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy	73.3 (36)	91.8 (36)	+18.5	
Comparison Group	79.0 (58)	90.7 (61)	+11.7	
Difference	-5.7	+1.1	+6.8	
11th Grade Class				
Academy	81.7 (51)	86.7 (44)	88.5 (49)	+6.8
Comparison Group	79.3 (52)	79.6 (41)	91.7 (43)	+12.4
Difference	+2.4	+7.1	-3.2	-5.6

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy	45.5 (36)	46.8 (37)	+1.3	
Comparison Group	50.0 (62)	48.2 (61)	-1.8	
Difference	-4.5	-1.4	+3.1	
11th Grade Class				
Academy	45.4 (51)	51.0 (39)	39.1 (50)	-6.3
Comparison Group	45.9 (52)	49.2 (38)	38.3 (43)	-7.6
Difference	-0.5	+1.8	+0.8	+1.3

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy	1.71 (35)	1.62 (37)	-0.09	
Comparison Group	1.11 (61)	1.57) (61)	0.46	
Difference	+0.60	+0.05	-0.55	
11th Grade Class				
Academy	1.49 (51)	1.61 (46)	1.52 (50)	0.03
Group	1.57 (47)	1.73 (44)	1.84 (45)	0.27
Difference	-0.08	-0.12	-0.32	-0.24

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy	1.81 (36)	1.96 (37)	+0.15	
Comparison Group	2.28 (61)	2.18 (61)	-0.10	
Difference	-0.47	-0.22	+0.25	
11th Grade Class				
Academy	1.88 (51)	2.05 (39)	1.79 (50)	-0.09
Comparison Group	1.90 (52)	1.91 (38)	1.82 (46)	-0.08
Difference	-0.02	+0.14	-0.03	-0.01

Table A.2 The Food Services Academy, Stockton

A. School Dropouts

	Program	Comparison Group
10th Grade Class	0% (0)	0% (0)
11th Grade Class		
Year One	22.5% (9)	26.3% (5)
Year Two	47.5% (19)	10.5% (2)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		85.4 (17)	80.3 (12)	-5.1
Comparison Group		86.6 (15)	79.5 (11)	-7.1
Difference		-1.2	0.8	+2.0
11th Grade Class				
Academy	72.5 (37)	80.8 (22)	73.2 (12)	+0.7
Comparison Group	82.9 (19)	78.5 (16)	70.1 (14)	-12.8
Difference	-10.4	+2.3	+3.1	+13.5

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		37.3 (17)	55.2 (12)	+17.9
Comparison Group		41.0 (10)	36.4 (9)	-4.6
Difference		-3.7	+18.8	+22.5
11th Grade Class				
Academy	34.0 (36)	51.5 (26)	52.0 (11)	18.0
Comparison Group	38.7 (19)	41.1 (16)	44.3 (8)	+5.6
Difference	-4.7	+10.4	+7.7	+12.4

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		3.82 (17)	2.67 (12)	-1.15
Comparison Group		4.50 (10)	4.11 (9)	-0.39
Difference		-0.68	-1.44	-0.76
11th Grade Class				
Academy	4.38 (13)	1.73 (11)	3.18 (11)	-1.20
Comparison Group	4.36 (11)	2.44 (9)	2.50 (8)	-1.86
Difference	+0.02	-0.71	+0.68	+0.66

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		1.40 (17)	1.98 (12)	+0.58
Comparison Group		1.41 (10)	1.28 (9)	-0.13
Difference		-0.01	+0.70	+0.71
11th Grade Class				
Academy	1.18 (36)	1.89 (26)	1.57 (11)	0.39
Comparison Group	1.43 (19)	1.55 (16)	1.69 (8)	0.26
Difference	-0.25	+0.34	-0.12	+0.13

Table A.3 The Corporate Academy, Sacramento

A. School Dropouts

	Program	Comparison Group
10th Grade Class	5.7% (3)	0.8% (1)
11th Grade Class		
Year One	1.4% (1)	20.9% (18)
Year Two	14.3% (10)	24.4% (21)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		NA	82.6 (46)	
Comparison Group		NA	75.0 (118)	
Difference		-	+7.6	
11th Grade Class				
Academy	NA	NA	80.2 (54)	
Comparison Group	NA	NA	77.9 (43)	
Difference	-	-	+2.3	

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		40.2 (63)	50.0 (44)	+9.8
Comparison Group		49.8 (83)	45.9 (90)	-3.9
Difference		-9.6	+4.1	+13.7
11th Grade Class				
Academy	51.2 (73)	55.6 (64)	50.8 (52)	-0.4
Comparison Group	31.7 (79)	41.0 (45)	52.7 (28)	+21.0
Difference	+19.5	+14.6	-1.9	-21.4

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		3.52 (63)	2.20 (44)	-1.32
Comparison Group		2.22 (83)	2.93 (90)	+0.71
Difference		+1.30	-0.73	-2.03
11th Grade Class				
Academy	2.35 (61)	1.12 (51)	2.31 (52)	-0.04
Comparison Group	1.52 (22)	1.98 (27)	1.54 (28)	+0.02
Difference	+0.83	-0.86	+0.77	-0.06

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		1.40 (63)	1.88 (44)	+0.48
Comparison Group		1.72 (83)	1.58 (90)	-0.14
Difference		-0.32	+0.30	+0.62
11th Grade Class				
Academy	1.78 (73)	2.00 (64)	1.87 (52)	+0.10
Comparison Group	1.34 (76)	1.51 (45)	2.08 (28)	+0.75
Difference	+0.44	+0.49	-0.21	-0.65

Table A.4 Computech Academy, Mountain View

A. School Dropouts

	Program	Comparison Group
10th Grade Class	0% (0)	17.7% (11)
11th Grade Class		
Year One	3.6% (1)	0% (0)
Year Two	10.7% (3)	12.7% (7)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy	NA	NA	96.7 (11)	
Comparison Group	NA	NA	92.8 (34)	
Difference			3.9	
11th Grade Class				
Academy	95.3 (28)	96.1 (19)	94.4 (15)	-.09
Comparison Group	NA	NA	93.8 (30)	
Difference			0.6	

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		46.7 (15)	46.8 (12)	0.1
Comparison		47.7 (49)	53.3 (34)	5.6
Difference		-1.0	6.5	-5.5
11th Grade Class				
Academy	38.1 (28)	53.7 (21)	54.0 (15)	15.9
Comparison	48.0 (44)	48.7 (50)	55.4 (23)	7.4
Difference	-9.9	5.0	-1.4	8.5

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		2.20 (15)	1.67 (12)	-0.53
Comparison		1.94 (49)	1.44 (34)	-0.50
Difference		0.26	0.23	-0.03
11th Grade Class				
Academy	2.29 (28)	0.53 (19)	1.0 (15)	-1.29
Comparison	1.36 (44)	1.04 (49)	1.0 (23)	-0.36
Difference	0.93	-0.51	0.0	-0.93

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		1.94 (15)	2.41 (12)	0.47
Comparison		1.74 (51)	2.03 (34)	0.29
Difference		.20	.38	0.18
11th Grade Class				
Academy	1.51 (27)	2.77 (21)	2.27 (15)	0.76
Comparison	1.99 (44)	2.23 (49)	2.36 (23)	0.37
Difference	-0.48	0.54	-0.09	0.39

Table A.5 The Health Academy, Oakland

A. School Dropouts

	Program	Comparison Group
10th Grade Class	0% (0)	11.9% (5)
11th Grade Class		
Year One	0% (0)	7.3% (3)
Year Two	16.3% (8)	31.7% (13)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		89.9 (28)	93.5 (22)	+3.6
Comparison Group		94.4 (40)	88.0 (33)	-6.4
Difference		-4.5	+5.5	+10.0
11th Grade Class				
Academy	91.0 (22)	96.4 (40)	93.5 (28)	+2.5
Comparison Group	92.8 (25)	88.7 (35)	80.2 (17)	-12.6
Difference	-1.8	+7.7	+13.3	+15.1

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		49.0 (28)	59.8 (22)	+10.8
Comparison Group		57.1 (40)	43.2 (33)	-13.9
Difference		-8.1	+16.6	+24.7
11th Grade Class				
Academy	55.6 (42)	61.7 (44)	63.0 (28)	+7.4
Comparison Group	51.6 (41)	39.4 (40)	36.2 (17)	-15.4
Difference	+4.0	+22.3	+26.8	+22.8

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		2.03 (29)	1.27 (22)	-0.76
Comparison Group		0.53 (40)	3.66 (33)	+3.13
Difference		+1.50	-2.39	-3.89
11th Grade Class				
Academy	0.83 (42)	1.09 (43)	1.32 (28)	+0.49
Comparison Group	1.83 (41)	4.08 (40)	5.23 (17)	+3.40
Difference	-1.00	-2.99	-3.91	-2.91

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		1.73 (29)	1.54 (22)	-0.19
Comparison Group		2.18 (40)	1.29 (33)	-0.89
Difference		-0.45	+0.25	+0.70
11th Grade Class				
Academy	2.26 (42)	2.29 (44)	2.01 (28)	-0.25
Comparison Group	1.93 (41)	1.30 (40)	1.22 (17)	-0.71
Difference	+0.33	+0.99	+0.79	+0.46

Table A.6 Foothill Computer Academy, Diamond Springs

A. School Dropouts

	Program	Comparison Group
10th Grade Class	0% (0)	8.9% (4)
11th Grade Class		
Year One	0% (0)	3.7% (1)
Year Two	17.9% (5)	18.5% (5)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		94.2 (14)	Not Available	
Comparison Group		94.1 (29)	"	
Difference		+0.1		
11th Grade Class				
Academy	92.7 (24)	94.2 (25)	Not Available	
Comparison Group	95.1 (15)	93.3 (26)	"	
Difference	-2.4	+0.9		

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		48.2 (19)	54.6 (13)	+6.4
Comparison Group		51.3 (40)	54.2 (23)	+2.9
Difference		-3.1	+0.4	+3.5
11th Grade Class				
Academy	51.6 (28)	58.0 (24)	53.9 (16)	+2.3
Comparison Group	48.2 (28)	49.8 (25)	52.1 (13)	+3.9
Difference	+3.4	+8.2	+1.8	-1.6

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		2.63 (19)	0.77 (13)	-1.86
Comparison Group		1.28 (40)	1.13 (23)	-0.15
Difference		+1.35	-0.36	-1.71
11th Grade Class				
Academy	1.37 (27)	1.37 (27)	0.43 (16)	-0.94
Comparison Group	1.89 (28)	1.83 (23)	0.84 (13)	-1.05
Difference	-0.52	-0.46	-0.41	+0.11

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		1.79 (19)	2.27 (13)	+0.48
Comparison Group		1.90 (40)	1.85 (23)	-0.05
Difference		-0.11	+0.42	+0.53
11th Grade Class				
Academy	1.97 (28)	2.23 (24)	2.53 (16)	+0.56
Comparison Group	1.88 (25)	1.90 (26)	2.14 (13)	+0.26
Difference	+0.09	+0.33	+0.39	+0.30

Table A.7 Rio Cazadero Academy, Sacramento

A. School Dropouts

	Program	Comparison Group
10th Grade Class	0% (0)	8.9% (4)
10th Grade Class	22.6% (7)	22.0% (13)
11th Grade Class		
Year One	7.0% (3)	6.7% (3)
Year Two	20.9% (9)	6.7% (3)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		92.4 (19)	90.8 (26)	-1.6
Comparison Group		92.7 (58)	87.3 (24)	-5.4
Difference		-0.3	3.5	3.8
11th Grade Class				
Academy	78.6 (38)	93.5 (34)	86.1 (26)	7.5
Comparison Group	89.4 (45)	86.7 (42)	87.7 (31)	-1.7
Difference	-10.8	+6.8	-1.6	9.2

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		30.3 (28)	65.8 (20)	+35.5
Comparison Group		33.9 (58)	49.7 (30)	+15.8
Difference		-3.6	+16.1	+19.3
11th Grade Class				
Academy	32.7 (42)	65.1 (37)	54.5 (24)	+21.8
Comparison Group	41.4 (45)	46.0 (42)	48.8 (21)	+7.4
Difference	-8.7	+19.1	+5.7	+14.4

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		5.36 (28)	0.30 (20)	-5.06
Comparison Group		4.62 (58)	2.60 (30)	-2.02
Difference		+0.74	-2.30	-3.04
11th Grade Class				
Academy	4.43 (42)	0.75 (24)	0.0 (24)	-4.43
Comparison Group	3.09 (43)	2.05 (21)	1.86 (22)	-1.23
Difference	+1.34	-1.3	-1.86	-3.20

E. Grade Point Average

	1984-85	1985-86	1986-87	Net Change
10th Grade Class				
Academy		0.91 (28)	2.82 (20)	+1.91
Comparison Group		1.04 (58)	1.73 (30)	+0.69
Difference		-0.13	+1.09	+1.22
11th Grade Class				
Academy	1.07 (42)	2.88 (37)	3.12 (24)	+2.05
Comparison Group	1.40 (45)	1.55 (42)	1.88 (22)	+0.48
Difference	-0.33	+1.33	+1.24	+1.57

Table A.8 The Electronics Academies, San Jose

A. School Dropouts

	Program	Comparison Group
Independence		
Year One	0% (0)	0% (0)
Year Two	0.8% (1)	9.6% (11)
Silver Creek		
Year One	0% (0)	0% (0)
Year Two	1.6% (2)	14.7% (10)

B. Percent Daily Attendance

	1984-85	1985-86	1986-87	Net Change*
Independence				
Academy		94.0 (109)	91.1 (95)	-2.9
Comparison	82.2 (79)	96.1 (90)	88.6 (86)	-7.5
Difference		-2.1	2.5	4.6
Silver Creek				
Academy		93.7 (92)	89.2 (85)	-4.5
Comparison		95.2 (38)	91.4 (38)	-3.8
Difference		-1.5	-2.2	-0.7

C. Credits Earned

	1984-85	1985-86	1986-87	Net Change*
Independence				
Academy	29.1 (102)	55.3 (111)	55.6 (96)	0.3
Comparison		50.6 (113)	50.4 (96)	-0.2
Difference		4.7	5.2	0.5
Silver Creek				
Academy	55.2 (95)	42.9 (92)	45.6 (85)	2.7
Comparison		46.9 (49)	48.2 (39)	1.3
Difference		-4.0	-2.6	1.4

D. Courses Failed

	1984-85	1985-86	1986-87	Net Change*
Independence				
Academy		0.75 (109)	0.88 (95)	0.13
Comparison	0.40 (82)	1.83 (113)	1.93 (96)	1.53
Difference		-1.08	-1.05	-1.40
Silver Creek				
Academy	0.98 (94)	3.12 (71)	2.82 (85)	-0.30
Comparison	1.11 (35)	2.63 (49)	2.36 (39)	-0.27
Difference	-0.13	0.49	0.46	-0.03

E. Grade Point Average

continued	1984-85	1985-86	1986-87	Net Change*
Independence				
Academy	2.59 (98)	2.21 (111)	2.31 (96)	.10
Comparison	2.69 (82)	2.02 (113)	2.07 (96)	0.05
Difference	-0.10	0.19	0.24	0.05
Silver Creek				
Academy	1.98 (95)	1.55 (91)	1.67 (85)	.12
Comparison	2.19 (35)	1.66 (49)	1.71 (39)	0.05
Difference	-0.21	-0.11	-0.04	0.07

* Net change figures represent change from the 1985-86 to 1986-87 school years. This is due to the often-missing 1984-85 data, and the lesser confidence in the data from this year (coming as it does from 8th grade, and several feeder schools with varying systems of record keeping).

Appendix B

AMENDED IN ASSEMBLY SEPTEMBER 9, 1987
AMENDED IN ASSEMBLY SEPTEMBER 8, 1987
AMENDED IN ASSEMBLY AUGUST 18, 1987
AMENDED IN SENATE MAY 19, 1987
AMENDED IN SENATE APRIL 8, 1987

SENATE BILL No. 605

Introduced by Senator Morgan
(Coauthor: Senator McCorquodale)
(Coauthors: Assembly Members Duplissea, O'Connell, Sher, Speier, and Vasconcellos)

February 25, 1987

An act to amend Sections 54690, 54691, and 54692 of, to amend the heading of Article 5 (commencing with Section 54690) of Chapter 9 of Part 29 of, to add Sections 54695 and 54696 to, and to repeal and add Sections 54693 and 54694 of, the Education Code, relating to education, and making an appropriation therefor.

LEGISLATIVE COUNSEL'S DIGEST

SB 605, as amended, Morgan. Schools: Partnership Academies.

(1) Existing law makes various findings regarding the Peninsula Academies Model Program. Existing law requires the Superintendent of Public Instruction, commencing with the 1984–85 fiscal year, from funds appropriated for that purpose, to provide specified apportionments to high school districts meeting specified eligibility criteria, for purposes of establishing not more than 10 academies under the Peninsula Academies Model Program, and to the Sequoia Union High School District.

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This bill would make specific findings regarding the success of the Peninsula Academies Model Program and would provide for the establishment of additional academies, to be known as Partnership Academies. This bill would require the Superintendent of Public Instruction, commencing with the 1987–88 fiscal year, from funds appropriated for that purpose, to issue grants in specified amounts to high school districts meeting specified eligibility criteria for purposes of planning, establishing, and maintaining Partnership Academies. This bill would authorize the superintendent to issue a maximum of 15 grants per year for the 1987–88, 1988–89, 1989–90, and 1990–91 fiscal years. This bill would require the superintendent, when issuing the grants to school districts, to ensure that the grants are equitably distributed among high wealth and low wealth school districts in urban, rural, and suburban areas. This bill would provide for the identification of eligible students, making presentations to prospective students, and selection of students.

(2) Existing law requires the Educational Technology Committee to assist the superintendent and requires the State Department of Education to evaluate the Peninsula Academies Model Program and to report to the Legislature regarding specified issues 2 years after the effective date of the existing law.

This bill would repeal these provisions and instead would require the superintendent to establish eligibility criteria, as specified, for school districts applying for grants, to contract for a 3-year independent review of the effectiveness of Partnership Academies, and to report the results of the review to the Legislature by January 1, 1991. This bill would prohibit a school district from establishing additional academies until the district has successfully operated its existing academy or academies. This bill would also require the superintendent to develop guidelines with respect to the Partnership Academies, as specified.

(3) This bill would appropriate ~~$635,000~~ *$535,000* to the State Department of Education for the 1987–88 fiscal year for allocation as specified.

Vote: majority. Appropriation: yes. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. The heading of Article 5 (commencing with Section 54690) of Chapter 9 of Part 29 of the Education Code is amended to read:

Article 5. Partnership Academies

SEC. 2. Section 54690 of the Education Code is amended to read:

54690. The Legislature hereby finds and declares that the Peninsula Academies Model Program has proven to be an effective school-business partnership program to provide occupational training to educationally disadvantaged high school students who present a high risk of dropping out of school. "Educationally disadvantaged high school students," for the purposes of this article, means students enrolled in high school who are at-risk of dropping out of school as indicated by at least three of the following four criteria:

(a) Past record of irregular attendance.

(b) Past record of underachievement (at least one year behind in the coursework for the student's respective grade level).

(c) Past record of low motivation or a disinterest in the regular school program.

(d) Disadvantaged economically.

The Legislature further finds that the success of the program is directly related both to the participation of private entities which have provided personnel, equipment, and training positions and to the initial development of the program conducted by the Sequoia Union High School District.

The Legislature further finds and declares that although the original Peninsula Academies were established to provide training in the high technology fields of computers and electronics, the model program has been developed successfully in the fields of medicine, finance, and food services, as well as high technology. It is therefore the intent of the Legislature that additional academies, to be known hereafter as Partnership Academies, be established in California.

SEC. 3. Section 54691 of the Education Code is amended to read:

54691. Commencing with the 1987–88 fiscal year, from the funds appropriated for that purpose, the Superintendent of Public Instruction shall issue grants to school districts maintaining high schools which meet the specifications of Section 54692, for purposes of planning, establishing, and maintaining academies, as follows:

(a) For the 1987–88, 1988–89, 1989–90, and 1990–91 fiscal years, the superintendent may issue a maximum of 15 grants per year, for purposes of planning Partnership Academies and developing the curriculum. The Superintendent of Public Instruction, when issuing the grants to school districts, shall ensure that the grants are equitably distributed among high wealth and low wealth school districts in urban, rural, and suburban areas. Each planning grant shall be in the amount of fifteen thousand dollars ($15,000).

(b) For the 1987–88 fiscal year, and each fiscal year thereafter, the superintendent may issue grants for the implementation and maintenance of academies initiated by the Sequoia Union High School District, the Peninsula Academies Model Program, or planned pursuant to subdivision (a). Implementation and maintenance grants shall be calculated in accordance with the following schedule:

(1) Districts operating academies established under the Peninsula Academies Model Program or the Sequoia Union High School District, may receive seven hundred fifty dollars ($750) per year for each qualified student enrolled in an academy, provided that no more than sixty-seven thousand five hundred dollars ($67,500) may be granted to any one academy for each fiscal year.

(2) Districts operating one or more academies may receive two thousand two hundred fifty dollars ($2,250) for each qualified student enrolled in an academy during the first year of that academy's operation, provided that no more than sixty-seven thousand five hundred dollars ($67,500) may be granted to any one academy for the initial year.

(3) Districts operating one or more academies may receive one thousand five hundred dollars ($1,500) for each qualified student enrolled in an academy during the second year of that academy's operation, provided that no more than ninety thousand dollars ($90,000) may be granted to any one academy for the second year.

(4) Districts operating one or more academies may receive seven hundred fifty dollars ($750) per year for each qualified student enrolled in an academy during the third year and for each year of operation thereafter, provided that no more than sixty-seven thousand five hundred dollars ($67,500) may be granted to any one academy for each fiscal year.

(c) For purposes of this article, a qualified student is a student who is enrolled in an academy for the 10th, 11th, or 12th grade, successfully completes a school year in the academy with an attendance record of no less than 80 percent positive attendance, and obtains 90 percent of the credits each academic year in courses that are required for graduation.

(d) At the end of each school year, school districts that have been approved to operate academies pursuant to this article shall certify the following information to the Superintendent of Public Instruction:

(1) The number of qualified students enrolled during the just completed school year, by grade level, for each academy operated by the district.

(2) The operation of each academy in accordance with this article, including Sections 54692 and 54694.

(3) The amount of matching funds and the dollar value of in-kind support made available to each academy in accordance with subdivisions (a) and (b) of Section 54692.

(e) The superintendent shall adjust each school district's grant in accordance with the certification made to him or her pursuant to subdivision (d) or in accordance with any discrepancies to the certification that may be revealed by audit. Notwithstanding the provisions of this section, the superintendent may advance the funding as he or she deems appropriate to districts that are approved to operate, or plan to operate Partnership Academies.

(f) Funds granted to school districts pursuant to this article may be expended without regard to fiscal year.

SEC. 4. Section 54692 of the Education Code is amended to read:

54692. In order to be eligible to receive funding pursuant to this article, a district shall provide all of the following:

(a) An amount equal to a 100 percent match of all funds received pursuant to this article, in the form of direct and in-kind support provided by the district.

(b) An amount equal to a 100 percent match of all funds received pursuant to this article, in the form of direct and in-kind support provided by participating companies or other private sector organizations.

(c) An assurance that each Partnership Academy will be established as a "school within a school" in the same manner as the Peninsula Academies Model Programs.

(d) Assurance that each academy student will be provided with:

(1) Instruction in at least three academic subjects each regular school term that prepares the student for a regular high school diploma. When possible, these subjects should relate to the occupational field of the academy.

(2) A "laboratory class" related to the academy's occupational field.

(3) A class schedule which limits the attendance to the classes required in paragraphs (1) and (2) to pupils of the academy.

(4) A mentor from the business community during the pupil's 11th grade year.

(5) A job related to the academy's occupational field or work experience to improve employment skills, during the summer following the 11th grade. A student that must attend summer school for purposes of completing graduation requirements is exempt from this paragraph.

(6) Additional motivational activities with private sector involvement to encourage academic and occupational preparation.

SEC. 5. Section 54693 of the Education Code is repealed.

SEC. 6. Section 54693 is added to the Education Code, to read:

54693. The Superintendent of Public Instruction shall establish eligibility criteria for school districts that apply for grants pursuant to this article. When establishing criteria, the superintendent shall consider the commitment and need of the applicant district. The superintendent may consider district indicators of need such as the number or percent of pupils in poverty or with limited-English proficiency, and the dropout rate.

No school district with less than three high schools may establish more than one academy until it has operated the existing academy successfully for two years. No school district with more than two high schools may establish more than two academies until it has operated the existing academy or academies successfully for two years. The years in which districts receive planning grants pursuant to subdivision (a) of Section 54691, shall not be considered years of operation for purposes of this article.

SEC. 7. Section 54694 of the Education Code is repealed.

SEC. 8. Section 54694 is added to the Education Code, to read:

54694. The Superintendent of Public Instruction shall develop guidelines with respect to the Partnership Academies. The guidelines shall include, but not be limited to, enrollment provisions, application procedures, and student eligibility.

SEC. 9. Section 54695 is added to the Education Code, to read:

54965. (a) The ninth grade teachers and counselors in schools maintained by school districts approved to operate academies pursuant to this article shall identify students eligible to participate in a Partnership Academy.

(b) Teachers and counselors in schools maintained by school districts approved to operate academies pursuant to this article, business representatives, and academy students of academies that are operating in the area shall be encouraged to make presentations to prospective students and their parents.

(c) The staff of each Partnership Academy shall select students from among those who have expressed an interest in the academy and whose parents or guardians have approved the student's participation.

SEC. 10. Section 54696 is added to the Education Code, to read:

54696. The Superintendent of Public Instruction shall contract for a three-year independent review of the effectiveness of the Partnership Academies, and shall report the results of the review to the Legislature by January 1, 1991.

The independent review shall include, but not be limited to, the following:

(a) An analysis of the extent and degree of success of business and industry involvement, including in-kind contributions, mentor services, summer jobs, and assistance in job placement.

(b) The number of pupils entering advanced training programs, obtaining employment, and enrolling in postsecondary institutions.

(c) Attendance rates.

(d) The number of pupils completing their high school education and graduating.

SEC. 11. (a) There is hereby appropriated from the General Fund to the State Department of Education the sum of ~~six hundred thirty/five thousand dollars ($635,000)~~ *five hundred thirty-five thousand dollars ($535,000)* or the 1987–88 fiscal year for allocation in accordance with the following schedule:

(1) In augmentation to Budget Item 6100-166-001 of the 1987 Budget Act, for funding the two school districts which received 1986–87 planning grants	$135,000
(2) In augmentation of Budget Item 6100-166-001 of the Budget Act, for funding the existing 10 academies pursuant to Section 54691 of the Education Code	~~175,000~~ *75,000*
(3) For the planning grants to 15 academies pursuant to Section 54691 of the Education Code	225,000
(4) For the independent evaluation pursuant to Section 54695 of the Education Code	50,000
(5) For the State Department of Education administrative costs for the purposes of Article 5 (commencing with Section 54690) of Chapter 9 of Part 29 of the Education Code	50,000

(b) It is the intent of the Legislature that funding in future fiscal years for the Partnership Academies program, established in Article 5 (commencing with Section 54690) of Chapter 9 of Part 29 of the Education Code, be provided in the annual Budget Act. It is further the intent of the Legislature that the Superintendent of Public Instruction shall include a line item for Partnership Academies in the superintendent's annual budget report to the Governor and the Legislature.

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Appendix C
Multivariate Analysis of Academy Program Effects

Underlying this statistical model is the notion that a student's performance in a given year can be predicted to some extent by that student's performance in the preceding year and by the student's gender, race or ethnicity, and date of birth. The question is: when differences between academy and comparison students in these predictor variables are taken into account, are academy students performing better than their counterparts in the comparison group?

The exact relationship between predictor variables and this year's performance may or may not be the same for academy students as for students in the comparison group. Therefore, the first step in the analysis is to estimate the relationship between predictor variables and student performance in the academy and comparison group at each site and to test whether that relationship is the same.

Specifically, let

$$(1) \quad \hat{y}_{ij,t} = a + by_{ij,t-1} + cx_{ij}$$

denote the estimated relationship between predicted student performance and predictor variables. Here $\hat{y}_{ij,t}$ denotes the predicted performance (attendance, credits, grades, or courses failed) of the ith individual student in the jth program (either an academy or comparison group) in year t. $y_{ij,t-1}$ is the previous year's value of the same performance measure for the same student in the same program. x_{ij} stands for a set of predictor variables (gender, race or ethnicity, and date of birth) that pertain to that same student but do not change from year to year. Finally, a, b, and c represent regression coefficients estimated from the data. In equation (1), these coefficients have the same value for academy and comparison-group students at each site. That is, the model in equation (1) assumes that the relationship between predictor variables and student performance does not differ between the two groups of students at each site. Equation (1) is estimated by pooling data for both groups at each site and computing the ordinary least-squares regression coefficients.

To test the assumption that the relationship is the same for both groups, two alternative models are estimated.

$$(2) \quad \hat{y}_{ij,t} = a_j + by_{ij,t-1} + cx_{ij}$$

Equation (2) is the same as equation (1) except that the intercept coefficient, a, is now allowed to take a different value for the academy group than for the comparison group. However, in equation (2) the slope coefficients, b and c, are still constrained to be the same in both groups. Equation (2) is estimated by pooling the data for both groups, but adding a binary variable which denotes whether a student belongs to the academy or comparison group.

$$\hat{y}_{ij,t} = a_j + b_j y_{ij,t-1} + c_j x_{ij} \tag{3}$$

In equation (3), both the slope coefficients, b and c, and the intercept coefficient, a, are estimated separately for the academy and comparison groups. Estimating equation (3) requires computing a separate regression for each of the two groups.

Equation (3), which "custom tailors" the model to fit each group of students, can account for more of the observed variance in student performance than equations (1) or (2). However, estimation of separate coefficients for each group of students requires that a larger number of coefficients be estimated. The statistical criterion for deciding whether to use model (3) instead of model (1) or (2) is whether the better fit obtained with equation (3) is "worth" the degrees of freedom that are used up in estimating separate coefficients for each group. Formally, this question is answered by performing an F test.

To test the null hypothesis that slope coefficients have the same value for both groups of students, while the intercept coefficient may have different values, the F statistic is computed as follows.

$$F(n_3 - n_2; N - n_3) = \frac{(E_2 - E_3)/(n_3 - n_2)}{E_3/(N - n_3)},$$

where E_2 = the sum of squared errors around regression equation (2);

E_3 = the sum of squared errors around the separate regressions represented by equation (3);

n_2 = the number of regression coefficients estimated in equation (2);

n_3 = the total number of coefficients estimated in the separate regressions represented by equation (3); and

N = total number of students in the academy and comparison groups combined.

If this F-statistic is *smaller* than the critical value, one concludes that it is appropriate to pool the data on academy and comparison students in order to estimate a predictive model. The choice then is between equation (1) and equation (2). That choice simply depends on the estimated coefficient on the binary variable denoting group membership in equation (2). If that coefficient is significantly different from zero, equation (2) is the best model; otherwise, equation (1) is best. To say that equation (2) is better than equation (1) is equivalent to saying that being in the academy makes a statistically significant difference. The size of that difference is the estimated coefficient on the variable denoting academy membership.

If the F-statistic above is *greater* than the critical value, then it is apropriate to use separate regressions for the academy and comparison groups. One then uses the following procedure to test whether performance of the average student in an academy program was better than would be predicted if that student had been in the comparison group instead. Let

$\hat{y}_{AA}$ = predicted value of outcome (attendance, credits, grades, or courses failed) for a student whose predictor variables had values equal to the mean for students in an *academy* program, where the predicted outcome is computed from regression coefficients estimated for the *academy* group;

$\hat{y}_{AC}$ = predicted value of outcome for a student whose predictor variables had values equal to the mean for students in the *academy* program, where the predicted outcome is computed from regression coefficients estimated for the *comparison* group;

$\hat{y}_{CC}$ = predicted value of outcome for a student whose predictor variables had values equal to the mean for students in the *comparison* group, where the predicted outcome is computed from regression coefficients estimated for the *comparison* group; and

$\hat{y}_{CA}$ = predicted value of outcome for a student whose predictor variables had values equal to the mean for students in the comparison group, where the predicted outcome is computed from regression coefficients estimated for the *academy* group.

Comparison of $\hat{y}_{AA}$ and $\hat{y}_{AC}$ tells us whether a student with the average characteristics of the academy group did better in the academy than he or she would have been predicted to do in the comparison group. Likewise, comparing $\hat{y}_{CC}$ and $\hat{y}_{CA}$ indicates whether a student with the average characteristics of the comparison group did better in the comparison group than would be predicted if he or she had been in the academy program instead. If both of these comparisons favor the academy program, it is apparent that the academy program is having a positive effect. Statistical significance of those differences is tested by determining whether $\hat{y}_{AC}$ lies outside the 95 percent confidence interval for predictions around $\hat{y}_{AA}$, and whether $\hat{y}_{CA}$ lies outside the 95 percent confidence interval for predictions around $\hat{y}_{CC}$.